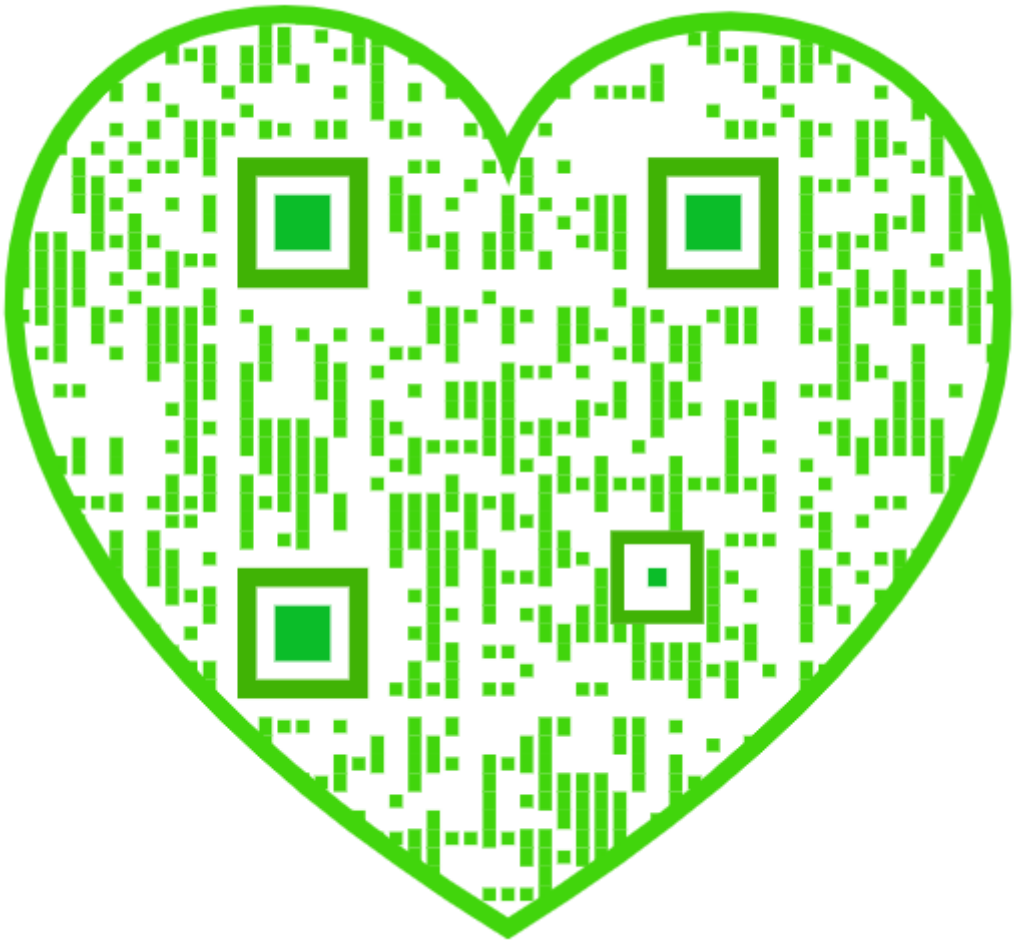

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INTERNATIONAL EDUCATION SERIES

AN IDEAL SCHOOL

OR, LOOKING FORWARD

BY

PRESTON W. SEARCH

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TO

PRESIDENT G. STANLEY HALL,

AMERICA'S GREATEST EDUCATOR,

AND TO HUNDREDS OF EARNEST COLLABORATORS,
SOME HUMBLE, SOME BETTER KNOWN, IN DIVERSE SCHOOLS,
WHOSE WORK HAS CONTRIBUTED TO MY OWN SUCCESS,

THIS LITTLE WORK IN CONSTRUCTIVE PEDAGOGY

IS APPRECIATIVELY DEDICATED.

EDITOR'S PREFACE.

In the original classification adopted for this series of books, educational criticism occupies the second place; it includes the works relating to educational reform, criticisms on the present system, and books to a greater or less degree revolutionary in their tendencies. Some books of this class propose only what may be strictly called reform. The recommendations of other books, if carried out, would produce little less than a revolution in school matters.

But all books written by earnest thinkers in the way of criticism on existing systems have their use in exciting thought in the minds of teachers who for the most part are following routine methods. It is not likely that more than five per cent of new experiments initiated in education will succeed in establishing themselves as of value to educational methods; the remaining ninety-five per cent will fail. It is so in new business ventures; even less than five per cent of new business ventures can be said to prove financial successes. But the five per cent of new experiments which succeed may add, and do add, enough of value to compensate for the waste involved in the other ninety-five per cent of experiments.

Even if we grant that of all criticisms and suggestions of reformers, only five per cent bring fruit in the form of experiments that prove anything either positive or negative, it still remains an important fact that criticisms and new experiments keep alive the work of education, just as in other matters.

The reader of the book of criticism will generally come prepared to refute and discard one half of the suggestions made by the reformer. He has in his experience—or he thinks that he has in his experience enough to demonstrate the futility of a large majority of the suggestions, especially if the book of criticism covers a wide ground and attacks the existing methods of education all along the line.

It is evident that every usage found in our schools can be attacked as well as defended. Take the matter of school buildings. It is known in every city and village that school buildings have improved vastly in the last thirty years, at least in respect to the amount of money invested in them. The talent of architects has been more freely employed in drawing up the plans, but, on the other hand, any one familiar with the subject will retort, Yet there does not seem to be any well-digested body of knowledge in regard to the lighting of the schoolroom. Take Chicago, take Boston, take any of our large cities, look at the school buildings that have been constructed in the past twenty years and see how many study rooms in them are lighted on one side only; and the side that is lighted often fronts the south, getting the sun between ten and two o'clock; or fronts the west, getting the sun between two and four o'clock; or the east in the morning, requiring

the window shades to be closed, and resulting in a dim side light for the pupils sitting farthest from the window. Again, in the winter days, in cities and towns burning soft coal, the light from one side of the room is insufficient. The result is, that children farthest from the windows hold the books nearer the eyes, and very soon a near-sighted habit is contracted. School-rooms should be lighted from the back of the pupil as well as from the left side.

Again, it is often recommended that school buildings should be only one story in height. Strong arguments are brought forward for it; but the reply is equally in earnest, which says the air in the lower rooms of a building is not so pure as the air of the second or third story, and that the light on the ground floor is far inferior to the light of the upper stories.

Even those who argue that all out-of-door air is purer, and that all air confined in the house is necessarily impure, are met with the argument, based on observation, that in malarious countries the night air out of doors is less wholesome than the air confined in the house. Experience on the Romana Campagna, or on the lowlands of the South Atlantic section of our own country, proves this.

Some people would have the school yard open as a playground for the children after school; but this measure is opposed on the ground that the child ought to get the thoughts of the school and the school building and the school yard entirely out of his head for at least sixteen hours of the day. If he has been in a school called a play-school, he will wish to vary

his plays and games and wish different surroundings, and he ought to have them.

Some of the reformers favour such a treatment of school architecture and school surroundings as would imply that the school is the single and sole social centre of the community. On the other hand, there are those who claim that the church and its auxiliary organizations have a stronger claim to be the centre. And those who have the political state most at heart will expect the public library, the town hall, the courts of law, or some other public institution to be the centre. A still larger number will claim that each of these great cardinal institutions—the church, the state, the school —have a reasonable claim to be in their turn, but intermittently, the centres of the citizens' life. It seems to these last-mentioned people that the citizen is kept in his sanity and sweet reasonableness by this variety of institutions. Each one of the cardinal institutions has a great, a rational purpose, but it can claim only a share of the attention of the life of the civilized man.

Passing to another subject, there is the question of class recitation, and the grading of schools. It is claimed on the one hand that the recitation class-exercise should occupy from twenty to forty minutes, according to the age of the pupil, and that the class is an instrument in the hands of a good teacher by which he can make an impression on each individual of his school, such as he could not make if the pupil recited by himself and did not form with others a class. It is said, for instance, that one pupil after another reciting his lesson shows to his fellow-pupils that he has mastered some thoughts and facts which they had failed to notice

in their preparation of the lesson; likewise that he has missed other thoughts and facts which they have mastered. A critical attention given during the recitation, therefore enables the pupil to observe the successes and failures of his fellows, and also to profit by the corrections and critical observations which the teacher offers. Each pupil, therefore, in a well-conducted recitation, views the lesson through the minds of all his fellow-pupils and also through the mind of the teacher, and thereby enlarges his own relatively feeble understanding of the subject, and also arms him with critical attention for the points in the next lesson similar to those which he had missed in to-day's lesson. Instruction by private tutor would be, according to this point of view, far less efficient than instruction in a large class conducted by a competent teacher. The teacher's view of the subject is not quite so easy for the pupil to grasp as the view offered by his fellow-pupil, but the pupil will arrive at a much broader view when he attains that of the teacher. On the other hand, the advocates of the ungraded school and of the private tutor claim that better results as to individuality are secured by their system.

Again, as to what is desirable in the cultivation of individuality: there are two sides, two sets of reformers. One reformer insists on individuality, and means by it that the pupil as he is, with his peculiarities and limitations, his likes and dislikes, his prejudices and his reasonable conclusions, should be kept as he is, or even made more so—i. e., more peculiar. On the other hand, another reformer thinks that his school is valuable because it assists the pupil to repress his narrow-

ness and weakness, which he brings from his heredity and from his merely natural environment, and learn to hold in check such peculiarities as are considered defects of character, while he should learn to put the force of his will upon realizing the good traits that he possesses. In other words, they claim that the school should do what it can to produce good citizenship according to a common type—good behaviour, civil manners, the virtues of industry and earnestness and kindness toward others, and such things. But upon the statement of this view, usually the persons who argue in behalf of individualism hasten to concede its rationality. They explain their position to mean only that they do not wish to have the pupil so graded and classified that he is not allowed to develop certain lines in his intellect and will in which he is unusually gifted. Then the party of the opposition accepts the amended statement. Individualism is good when it makes for the good of the community. But how can individualism be cultivated or increased? Certainly the individuality is strongest which knows best how to avail itself of the strength of the community—how to combine one's fellow-men in the interest of a great cause. Now, the school gives precisely the studies which enable the individual to combine with his fellow-men. Therefore, the school by so much enhances the individuality of its pupil.

Again, one educational reformer wishes to modify the course of study and devote much more attention to botany or to zoology under the name of nature study; he wishes to have less time devoted to reading and writing and arithmetic. He has only to listen to hear a chorus

of opposition to this. An opposite reformer tells him that it is better to study the feelings, thoughts, and deeds of the human race, as depicted in the lessons of the school readers, and to give a comparatively small portion of the school programme to botany or to zoology. He argues in behalf of this on the ground that a knowledge of human nature is most important to the future citizen.

Another reformer argues that writing and drawing should be postponed until somewhere between the tenth and fifteenth year of life. He alleges that the brain tracts which have to do with the finger, hand, arm, eye, and tongue movements, and movements of the face, develop later. An opponent is ready with this reply: that while it is true that the areas that deal with accessory movements come later than those of the fundamental movements, yet that the former areas develop prenatally in the child and become active, some in a few weeks, others in a few months after birth, and are pretty fully developed by the third year of the child's life, and that he is positively hungry for exercises of the various accessory muscles and their corresponding brain tracts for at least two years before he enters the kindergarten.

Another reformer claims that it is the chief business of the school to develop these small accessory brain tracts; still another reformer holds that the school should limit itself to the fundamental muscles, because the brain tracts used for the fundamental movements occupy a so much larger portion of the brain. But an opponent of the latter reformer immediately attacks this alleged ground on a question of fact, and says that

the brain of man has a far greater proportion of its surface used for accessory muscles, and that the full arm movements, for instance, and the movements of the lower limbs, do not require so much brain as the movements of the muscles of the eyes and the adjoining muscles of the face. And still another opponent objects altogether to the settling of the question of time and place of a branch of study on the ground that the brain tract is large or small. It calls attention to the fact that almost all education deals with inhibiting animal impulse or transmuting it by ethical impulse; and it hints, too, that the ablest investigators of the human brain think that all of the gray matter is devoted to inhibition, or, in other words, to action which forms new lines of activity out of the raw stuff of mere animal impulse and makes them to be civilized habits. It is clear on reflection that the child begins almost at birth to inhibit certain spontaneous actions, and that he gradually builds up an inhibited life in securing for himself that great network of customs and usages which etiquette, the vocation in life, the laws of the state, and the ordinances of religion demand. No wonder that the human brain has such a large development of cortex or gray matter if it is used for this purpose.

Another reformer wishes to have department instruction in the primary grades, say, with children of the eighth, ninth, and tenth year, and later. His heated opponent says that this would convert the ordinary elementary school into an orphan asylum; and he describes the dreariness of the upper primary school of forty years ago, when a semi-Lancasterial plan prevailed and the children were all together in a large assembly

room and sent to special teachers in small recitation rooms. In some cases the children recited wholly to these assistant teachers, but they did not conduct their study under them, and there was a lack of that home feeling which should be preserved to some extent for several years, say until the twelfth year, in the elementary school.

Another objector urges the point that a struggle will result between the special teachers, each one wishing to absorb most of the time and intellect of the pupils for his or her specialty. Another person calls to mind the opening of the Quincy School in Boston in 1847, and the great humanizing that has resulted in methods of discipline in school by the adoption of the plan of having each room with its pupils under charge of a teacher who supervises both their work of preparation of the lessons, and also their work in recitation. On the other hand, a new advocate of the department system of teaching urges that it furnishes teachers who are expert each in his own branch.

This alternate contention may follow throughout the entire lines of special methods and measures of school instruction, and such contention must be admitted to be on the whole enlightening to the teacher who follows use and wont. He begins to arouse his critical faculties into activity and to think for himself, and to observe many defects of his own teaching and of the teaching of others that had entirely escaped his attention.

It is well to enter upon the reading of books of educational reform. Nothing is more stimulating to the teacher; but he should supplement this reading by a

reading of the history of education, for it is only in the history of education that he sees the outcome of reforms and can understand their strong and weak points. Nearly all present practices that have become established have a history of trials and experiments, and one who studies their growth in the past is taking the best way to discover what reforms should be taken up as the next best step in the present.

W. T. HARRIS.

WASHINGTON, D. C., *August, 1901.*

INTRODUCTION.

I HAVE carefully read the manuscript of this book with great and growing interest to the close. While some of the practical points it treats are beyond my ken, and while there are a few minor matters in which I differ from the author, it is, on the whole, a book I wish I could have written myself; and I can think of no single educational volume in the whole wide range of literature in this field that I believe so well calculated to do so much good at the present time and which I could so heartily advise every teacher in the land, of whatever grade, to read and ponder.

The author, who has had an unusually wide, varied, and successful experience, has deliberately laid aside the burden of administration, refused I know not how many attractive openings, and taken a year off to state, with more deliberation and completeness than before, the educational faith that is in him, and has done so in a way that is sure to place him before the public as the leader of individualism in the sub-collegiate grades —a movement comparable only with the work of President Eliot in the collegiate stages of education. The work of each of these pioneers supplements and would

be incomplete without that of the other, for each has been tunnelling the mountain from opposite sides, one working down and the other up the grades. Here they meet, and for the first time the full scope of the movement is plain, and the through line that is to short-circuit and economize so many of the old ways is open.

The change from the scholiocentric to the paidocentric standpoint is comparable not so much to that from the geocentric to the heliocentric view as to the reformation which made it plain that church, Bible, Sabbath, etc., were made for man and not man for them. We who are in the midst of it can hardly realize the magnitude of the changes involved, which must be seen in historic perspective to reveal their epoch-making significance. Superintendent Search understands that true ideals are the most practical working methods, and has found many, if not most, of these embodied, feature by feature, in the schools of many cities and countries. Part of his work consists in gathering these items from where they lay scattered and ineffective, and combining them into a unitary working plan which might be realized wherever conditions favoured. Even if in its entirety it is realized nowhere, it should be a stimulus and inspiration everywhere.

As not the least of its merits I count its fitness to polarize educational forces into conservative and progressive, the healthiest and most vitalizing of all party divisions. Younger and abler men and women, who feel that the best is yet to come in education, because of their own power of faith and enthusiasm, are sure to applaud and adopt; while those who are chiefly concerned that nothing the past has given be lost, will look

with some concern upon a prophet so clear-sighted and confident of a new pedagogic dispensation. Yet there is not a word of animosity, and criticism was never more amiable and even where most radical is most kindly and indeed almost regretful.

Of the writer's absolute sincerity and depth of convictions, of his honesty and readiness for utter self-effacement, if personal interest ever seems to militate against the advancement of his ideals, his career and his entire personality leave no shadow of doubt. His method is conservative, his spirit a happy combination of the *suaviter in modo* with the *fortiter in re,* and he is eminently a practical idealist—a rare combination of qualities seldom united. No one would be less disposed to attempt such reconstruction by revolutionary methods, and none more contented with very gradual approximation to his ideals.

As we know more of child nature and the nascent periods of growth we shall be able to make adjustments more and more accurate and economic; but the general principles here laid down are basal for the new education, and their far-off fruitage will be seen in more completely developed and more diversified personalities, in broader conceptions of what education means, and in a correlation of educational forces of the home, church, and state, and in higher and sounder ideas of parenthood itself.

G. STANLEY HALL.

CLARK UNIVERSITY, *June, 1901.*

AUTHOR'S PREFACE.

"Hitch your wagon to a star." (Emerson.)

I BELIEVE in ideals, and in ideals which can not be easily reached; for the man who raises his ideals highest is the one who lifts his work most. Therefore, I am not concerned that the things presented in this little constructive endeavour will not find bodily incorporation in schools; for it is cross-fertilization and not grafting which has given us our richest varieties of fruits and flowers. This work is an attempt at spirit, not letter; at principle, not method.

I do not come to this presentation with merely a theoretical knowledge of schools, but from the rich, active, versatile experience of one who has made a faithful attempt to solve for his own schools some of the great, burning questions of child life. A service as teacher for three years in the ungraded schools, as tutor in college, as teacher in the lower-grade schools and in the commercial school, as principal of a classical academy and normal school, as specialist in and principal of a high school, as supervisor of a large system of evening schools, as superintendent in the village, the town, the smaller city, and the larger city schools,

in every case with rare opportunity for experimental endeavour, supplemented with wide observation in every part of the country, entitles me to speak with some confidence, and I trust with acceptance, concerning reforms most needed in the schools of the day.

The man who once presents his ideals to the world makes his own life work difficult; for he is ever afterward, more than other men, measured by these same standards, the realization of which conditions limit. Under such circumstances, it is best for him to offer freely the accumulations of hard-earned experience and long years of toil in order that others may carry forward the work which an impatient world would fain deny him. It is also true that an expressed ideal soon loses its original identity, working its way often unconsciously into the products of others, who perhaps were hostile to its original utterance. It is in this way the world moves forward. Evolution appropriates as its own everything which can enrich; but no one factor can be better expended than to be thus absorbed. It is perhaps well that it is so.

That these ideals may not seem beyond practical application, I have attempted to illustrate each point as presented by citations from the actual experiences of schools. A long, active, personal experience in exceedingly rich fields, a wide observation of the best schools in every part of the land, and an accumulation of data perhaps in kind not the possession of any other person, enable me to do this a hundred times beyond the limits of these pages. There is scarcely a single feature of all these ideals presented, no matter how inaccessible they may seem, which is not supported by

something tested and proven, to a greater or less degree, in the experience of schools. If these fragments of success can be found, no matter how scattered, then an ideal school is the direct product of their coordination in a single system. If only one teacher can reach the results herein described, then the possibilities of the whole plan are completely demonstrated.

The ideal school will never be the product of any one person; nor is this little work in exposition. The treasured contributions of a still living past and the willing co-operation of many collaborators in various parts of the country have been freely utilized. To these earnest associates, so closely related to my own work, but whose names are too many for mention, I desire to express my personal appreciation and indebtedness. If any one thing has ever made my own work successful, it has been the noble co-operation of a great coterie of workers whose zeal for better things grows with the passing years.

My thanks are especially due to President G. Stanley Hall for his great interest in urging the production of this work, and to Dr. A. F. Chamberlain and Librarian L. N. Wilson for helpful kindness in proof-readings during the author's absence in Europe.

The questions presented in the discussions of this work are largely those which have come to my table in earnest inquiries from all over the country. They type very well practical difficulties concerning which, in an enormous correspondence, and by lecture audiences, I have been repeatedly asked to give information; and they are offered largely in the personal form in

which they have appeared. Perhaps their discussion here may be helpful.

If this discussion seems to be over-critical, I trust it will be remembered the criticism largely applies to my own work as well as that of others. I love the public schools, in the service of which my life has been spent; but my experience with the one hundred thousand boys and girls who have been under my charge, supplemented by a wide observation of schools in almost every state of the Union, tells me there are radical defects in our school practices which must be remedied. The best things in education are not yet. It is in this spirit, which comprehends my own responsibility as well as that of others, that this little attempt in construction is offered. May I not hope to be understood?

PRESTON W. SEARCH.

CLARK UNIVERSITY, WORCESTER, MASS.

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AN IDEAL SCHOOL.

CHAPTER I.

THE PROPOSITION STATED—INTRODUCTORY QUERIES.

At the very beginning of this discussion I wish to advance a fundamental proposition: *we must reconstruct our educational system.* Not that it has not accomplished much good in the past, but because the time has come when we should rise to something better. We have been travelling at a rapid rate in these latter days in science, invention, economics, and art. The schoolman must keep pace with the world's demands. His methods have been too passive, too profligate, and too inert. The school must be built fundamentally for the pupil. It must be more democratic and afford coequal opportunity to all children. It must accord with Nature. It must conduct its work by the active method. It must recognise heredity, environment, innate faculty and trend, and give opportunity for spontaneity, creation, choice, and self-government. It must depart from uniform requirement and recognise the supreme importance of an education of differences. There must be the removal of all false incentive, and the substitution of the performance of work from pure love for work and because it is right. The school must be the promoter

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of health—physical, intellectual, and moral. Given its constituency, it must be responsible for results. The product of the school must be the free, enkindled soul, alive to observation, trained to habits of industry, original inquiry, and artistic enjoyment—a creator in the world of action—a self-governing, independent-thinking, and wealth-contributing citizen.

Has the school been built fundamentally for the individual pupil? It must be admitted that it has not been. The central principle in gradation has been that the child must fit the school and not the school fit the child. The work has been planned for the class, conducted for the class, with promotions made at class intervals. The thought that the child is a personal unit, potential in his individuality and fitness for a distinctive mission in life, has to no considerable extent ever entered into the constructive policy and plans of schools. The school can not rise to its best until it fits the individual needs of each and every pupil, and these needs are not merely the superficial ones of the present, but they take hold of a futurity wherein man is never so strong as when, in science, invention, literature, or art, he has created something of value because of his strength as an individual.

Has the school been sufficiently democratic? It has not been. Built for an impossible factor wherein an imaginary average pupil was the fallacious unit, it has failed to give just opportunity to either the "born long" or the "born short." The bright, capable pupil has been retarded in his progress, has spent time in lifeless reviews and valueless repetition of lessons, and has had his ambition stunted; while the slow-going pupil,

who often fruits best in later life, has been hurried forward at an unnatural pace, plunged prematurely into difficulties he does not understand, to flounder, to repeat grades, and to be discouraged, when education should have been to him just opportunity proportionate to his working ability. The school holds its constituency by compulsory attendance and not primarily by merit; but it fails to give adequate advancement, as is shown by the preponderance of numbers * in the lower grades over those in the higher grades. Not, perhaps, in intention, but in practice, it conserves the interests of the aristocracy of the few who can rather than the democracy of the many who may. It is not built for the masses, to whom it should grant wide, differentiated, and fruitful opportunity. To be the school of a democratic people, it must plan for the strong and the weak, the rapid and the slow, the wealthy and the poor, the one whose whole energies may be given to the school and the one who must carry responsibilities at home. To be anything else, to crowd out the unfortunate in life and those of lesser degree in order that the privileged few may monopolize the benefits of education, is a direct perversion of the people's money. The school must open its doors to all classes and at all hours, and open them wide.

Has the school placed its practices in accord with Nature? Not to any considerable extent. "The history of human thought," says Compayré, "shows that there has ever been a tendency to separate form from content, or letter from spirit, and as constant a pre-

* Table of Ages, Chapter II.

dilection for form or letter, as distinguished from content or spirit." The child has gained his glimpses of Nature through the eyes of others. He sees "as through a glass darkly," and not "face to face." "Study Nature in the house, and when you go out you canna find her." The primary school begins its work with dry, meaningless abstractions. It is taken for granted that the child can do little until he can read—until he is equipped with the tools for second-hand acquisition. His after-education contains much of this same procedure—form before content, letter before spirit, nomenclature before idea, some one else's interpretation instead of personal knowledge, and attempt at expression of that which is not yet conceived. "Things! things!" exclaims Rousseau, "I shall never tire of saying that we ascribe too much importance to words. With our babbling education we make only babblers."

Again, are the methods of the school natural? Is there recognition of the great fundamental nascent periods in child growth? Is there training to keen, alert observation, to logical thinking and to correct expression? Does the school connect the innate germ of love for the beautiful and of wonder at the mysterious with the inspired and continuous student of the future? Where are the method of Socrates, the philosophy of Plato and Aristotle, and the practices of Pestalozzi?

Are the methods of the school sufficiently based on activity? They are not. There is too much repetition, too much of waiting for others to catch up, too much time lost while others are reciting. The ordinary form of recitation is too expensive. There is too much loss of time, dissipation of energy, and trying on of misfit

clothes. It is this more than any one thing which has driven the pupil to the outside preparation of lessons. Within school the programme is all recitation; there is little time for the pupils to study. The teacher is too much a hearer of lessons. High art in teaching requires that the instructor should be submerged and the school be a place where, under unconscious direction and inspiration, the pupil shall find results awaiting his own pleasurable investigations and personal creation. There may be virtue of a kind in the class room where the teacher carefully plans all the steps of procedure and insists on the performance of work according to her ideals; but, in educative worth, it can not compare with that where the pupil feels the glow which comes from personal discovery and accomplishment. It is a little thing to be an imitator; a great thing to be a creator. The father who insists on his son holding the board while he drives the nail may drive the nail well, but he who holds the board while the son drives the nail does better. The nail may not be so well driven, but he educates the son. Even so in the school room the child must be permitted to do his own work. Dead time must give place to active endeavour. The child must be a discoverer, an originator, a creator. He must be permitted to drive the nail.

Heredity, what place has it in the construction of school policies? Is there recognition of the fact that the child is more than post-natal, and that which Nature has been centuries in forming can not be changed in a day? The elements which constitute the personal equation are not superficial, but "extend from 'way back," and therefore must fundamentally determine the base

of approach in the education of the child. Not only in his inherited tendencies to weaknesses does the child appeal to us for sympathetic training, but his virtues and strengths are more than appear on the surface. The child is nearer God than is the man. Being has its past as well as its future. Evolution does not lift all its products equally. Hence, he who builds a graded course of instruction, thinking of origin as being only five or ten years back, does violence to an heredity which knows no uniformity and offers mankind the most in that the germs of immortality are not all alike.

Then, too, environment presents its conditioning factors. Side by side in the same school room sit the wealthy and the poor, the child well fed and the one who seldom knows an adequate meal, the well-clothed and the one exposed to the storm, the child who has had normal hours of sleep and the one who has been hurried from his bed to sell the morning papers or to do other work, hours before school, the child of luxury and the one of heavy responsibilities at home, the one who is surrounded with culture and the one who has little opportunity even for reading at home, the child of growing strength and the one of increasing weakness, the sick and the well. Can any system of uniform requirement stand before the bar of justice and equity when charged with a responsibility of this kind? Who made the schoolman so omniscient and omnipotent that he can justly take into consideration all these conditioning elements of heredity and environment when he sits down to measure mind by a scale of per cents or other mechanical nomenclature, which too often

measures himself and not the pupil whose infinitude he has failed to comprehend?

The tests of an educational system are not those which obtain in the class examination, but in the opportunity afforded for the spontaneous development of the *ego* which can not be measured. Undoubtedly there are certain favouring elements of health and balance which are the same for all pupils; but that all should have the same loves, the same bent, and the same heights to climb, is an educational absurdity. Great things in literature, in scientific discovery, and in invention, do not come where men move in solid phalanx, but are found along the heights where the individuals tread. Indeed, as a rule, the inventors have not come up through the schools. There is that born in the child which determines his predilection, and the great teacher is he who early discovers the innate germ and gives it opportunity for expression. Soul is not the product of the school.

We need, then, a radical departure from the uniformitization practised so much in schools. We need an education that will develop differences and conserve individuality. This will not render school work easy; it makes it hard and difficult, but it will certainly be more scientific.

It is often argued that there is so much of total depravity by inheritance that the child needs requirement and foreign incentive. Probably that which the soul inherits is not depravity, but liability to weakness. The soul itself bears the impress of divinity, and is born for great things. Zuchmann says, "If the babe could hear its mother sing in perfect voice, every child would

be a singer." Even so there is that in every child which will burst forth into life and beauty under the right favouring nurture; sometimes it will, any way. It is a mistake to think the child has no innate love for beauty, or concord or symmetry. The germs may be in embryo, or they may sleep, but they will respond to sunshine and culture. So, in the school, the soul will awaken to the beauty in Nature, the noble in literature, the heroic in history, the wonderful in science, and the delightful in art, and by related interests to other things of secondary importance. The discovery of approach may sometimes be difficult, but the teacher can afford to run the whole gamut of possibilities in order to find the right key to interest; and through that door should be the entrance to other treasure-houses beyond. To do this to any considerable extent, under the stress and strain of uniformity, is impossible; but there will never be a thorough test of the value of interest as an educating medium until it is done. The preciousness of a single soul, awakened from dormancy unto life, is worth more than the mechanical excellence of a world of schools.

Have the schools been conservative of the health of school children? It must be admitted that they have not been. It seemed to me the finest-looking lot of school children I ever saw was in the city of Salt Lake. This was immediately after the inauguration of the public system in that city. Statistics are abundant to show the immense amount of physical impairment, and sometimes wreckage, attendant upon the pursuit of an education. If education is to mean anything, it must mean health; and unless the public schools are pro-

moters of health, they are fundamentally wrong. Says President G. Stanley Hall: "Now, if this tremendous school engine, in which everybody believes with a catholic consensus of belief perhaps never before attained, is in the least degree tending to deteriorate mankind physically, it is bad. Knowledge bought at the expense of health, which is wholeness or holiness itself in its highest aspect, is not worth what it costs. Health conditions all the highest joys of life, means full maturity, national prosperity. May we not reverently ask, What shall it profit a child if he gain the whole world of knowledge and lose his health, or what shall he give in exchange for his health?"

Shall the school be held responsible for results? Most certainly. If it is found that myopia, hollow chests, spinal curvature, heart defects, and nervous and digestive diseases increase in schools, as expert examinations find to be the case, who is at fault? If a child continues a dullard, a drone, or a dunce, what shall be said of the person who has been employed to set the machinery of his life in operation? More than that, is there not responsibility for the moral elevation of those with whom the teacher lives day after day? Most certainly there is. Fénelon had a similar task in his education of the irascible Duke of Burgundy. Are the children in the schools inspired with love for study? Do they love attendance upon a good lecture? Are they continuous students after they leave school? Are they trustworthy in their self-government? The school can not evade responsibility any more than can the physician who assumes charge of the sick in the early stage of disease. It must be the mission of the school to pro-

mote health, to inspire to action, to inculcate a love for noble things, and to lift to the level of higher living. The card report sent from the school to the home is often a measure more of the teacher than of the child.

That better results may obtain, there must be a radical reconstruction of schools. Happily, the dawn of the new era does not seem very far off. The enormous interest the better teachers of America are taking in child study, the many departures here and there from traditional and uniform method, an awakening conscience within and without the schools, the leavening influence of earnest attempts at something higher—these are all prophetic of the early coming of better things. The school of the twentieth century will be based on a better knowledge of children, and will mark a new era in education.

CHAPTER II.

THE LOSSES OF THE SCHOOL.

It will probably be well to preface our constructive presentation by a closer examination into the condition of the present school, so that we may avoid many of its evils in our ideal school. Somehow there is such a universal tendency to believe in that which we now have, attacks on its alleged merits are so zealously repelled by the executors of past educational estates, the school of mechanical excellence looks so well on its surface and runs with so little friction, that it is not easy to gain serious attention to that which is more complex and perhaps calls for more careful study and administration. It is said that the great dynamos at Niagara, which supply power for the entire city of Buffalo and adjacent places, run easily and noiselessly, and that only four men are required for their care. But smoothness of running and serenity are not the tests of a school of high ideals. Such a school may not look so well on the surface. It does not plan for immediate results. It will not run itself. Scientific education is no automaton process, but requires endless adaptation, readjustment, and discovery. Unquestionably the school of individual differentiation will be more complex and more difficult to conduct than the one of Procrustean

method. It is infinitely harder to adapt one school to the needs of a thousand pupils than to adapt one thousand pupils to a single plan.

Concerning the inadequacies of the graded school system, let us call up the testimony of a few competent witnesses.

In 1880 Dr. Washington Gladden made a suggestive investigation * concerning the school training of one hundred representative successful men in the city of Springfield, Massachusetts. The one hundred men included " bank presidents, insurance company presidents, chief managers of railroads, heads of the most important manufacturing companies, leading merchants, leading lawyers and physicians, chief editors, and principals of schools." Letter inquiries were addressed to these persons, asking " Whether your home during the first fifteen years of your life was on a farm or in a village or city? "

Of the 100 persons so addressed, 89 made replies. The reports of these 89 persons showed that 12 spent the first fifteen years in the city, 12 in the village, and 64 on the farm; but of the 24 who lived in villages and towns, 6 were practically farmer boys, for they lived in small villages or on the outskirts of cities. Seventy had such training as the farming boy usually received.†

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* St. Nicholas, March, 1880.

† The writer has frequently asked approximately the same question of large and representative gatherings of educators, to find the same remarkable testimony that more than two thirds of these leaders have come up through the rigorous processes of the unconventional rural school. The lives of America's college presidents present even more corroborative evidence of the ungraded

To this implied criticism of Dr. Gladden the schoolmen have made a weak defence, their principal argument being that this study brought out the differences in conditions of life as the great determining factor. This only goes to show the lack of adjustment of schools to the needs of changing times. Education to be scientific must preserve to the world the great fundamental processes which all evolution has shown to be necessary for the best culture of vigorous life.

President David Starr Jordan, in his vigorous utterances from Stanford University, has been doing much toward the reconstruction of schools. Says he: *

"There is no virtue in educational systems unless the system meets the needs of the individual. It is not the ideal man, or the average man, who is to be trained; it is the particular man; as the forces of Nature have made him. His own qualities determine his needs. 'A child is better unborn than untaught.' A child is still untaught, if by his teaching we have not emphasized his individual character, if we have not strengthened his will and its guide and guardian—the mind. . . . All education must be individual, fitted to individual needs. That which is not is unworthy of the name. A misfit education is no education at all. The rewards of investigation, the pleasures of high thinking, the charms of harmony, have never yet been for the multitude. To the multitude they must be accessible in the future. . . . If we are to make men and women out of boys and girls, it will be as individuals and not

school's virility. Surely, soil and rough-shod opportunity have well done their work in the making of men.

* Jordan's Care and Culture of Men.

as classes. The best field of corn is that in which the individual stalks are most strong and most fruitful. Class legislation has always proved pernicious and ineffective, whether in the university or in a state. The strongest nation is that in which the individual man is most helpful and most independent. The best school is that which exists for the individual pupil."

President Eliot, in his admirable article on The Function of Education in Democratic Society,* has said:

"Another important function of the public school in a democracy is the discovery and development of the gift or capacity of each individual child. This discovery should be made at the earliest possible age, and, once made, should always influence, and sometimes determine, the education of the individual. It is for the interest of society to make the most of every useful gift or faculty which any member may fortunately possess, and it is one of the main advantages of fluent and mobile society that it is more likely than any other society to secure the fruition of individual capacities. To make the most of any individual's peculiar power, it is important to discover it early, and then train it continuously and assiduously. It is wonderful what apparently small personal gifts may become the means of conspicuous service or achievement, if only they get discovered, trained, and applied. In the ideal democratic school no two children would follow the same course of study or have the same tasks, except that they would all need to learn the use of the elementary tools of education—

* Eliot's Educational Reform, p. 408.

reading, writing, and ciphering. The different children would hardly have any identical needs. There might be a minimum standard of attainment in every branch of study, but no maximum. The perception or discovery of the individual gift or capacity would often be effected in the elementary school, but more generally in the secondary; and the making of these discoveries should be held one of the most important parts of the teacher's work. The vague desire for equality in a democracy has made great mischief in democratic schools. There is no such thing as equality of gifts, or powers, or faculties, among either children or adults. On the contrary, there is the utmost diversity; and education and all the experiences of life increase these diversities, because the school, and the earning of a livelihood, and the reaction of the individual upon his surroundings, all tend strongly to magnify innate diversities. The pretended democratic school with an inflexible programme is fighting not only against Nature, but the interests of democratic society. Flexibility of programme should begin in the elementary school years before the period of secondary education is reached. There should be some choice of subjects of study by ten years of age, and much variety by fifteen years of age. On the other hand, the programmes of elementary as well as secondary schools should represent thoroughly the chief divisions of knowledge—namely, language and literature, mathematics, natural science, and history, besides drawing, manual work, and music. If school programmes fail to represent the main varieties of intellectual activity, they will not afford the means of discovering the individual gifts and tendencies of the pupils."

Hold the public schools, as they are largely constituted, up before this comprehensive mirror, and what do we see?

Dr. Edward Everett Hale remarks, "My experience with schools and with the college teaches me to distrust all the mechanisms of education." * And again: "I do not lay much stress on the teacher. A great teacher, who will inspire you, is certainly a great blessing." †

Says Prof. John Dewey,‡ "The school is not the place where the child lives," and, "There is very little place in the traditional school for the child to work."

The Forum articles by Dr. J. M. Rice, on the public schools of the United States, have contained some profound criticisms which deserve the careful consideration of every person interested in the improvement of existing methods of education.

Dr. E. Stuver, in making an investigation # as to the values in our present system of education as presented in the requested opinions of one hundred and fifty of our leading educators and physicians, said concerning those who expressed themselves on this particular point: "Twenty-nine out of sixty-three educators, and thirty out of thirty-five physicians, do not think our present course of study best calculated to develop the highest physical and intellectual powers of the child. Eighteen educators and one physician are doubtful."

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* Hale's How I was Educated.

† Hale's What Career?

‡ Dewey's The School and Society.

Stuver's How does our School System influence the Health and Development of the Child?

"It is not strange," says Dr. Hall,* "that so grand an institution should become of itself an object of love, pride, and inspiration; that there should be rivalry in mechanical excellences like attendance, punctuality, order, percentages, etc.; that in Austria and Russia teachers should wear uniforms as government officials; that reformers should be feared; that there should sometimes be tyranny and jobbery. Especially here, where supervision itself is little skilled, and where one fourth of our teachers leave the business each year, there is peculiar danger that the individual pupil will be subordinated to the machine, for this is the chief vice of the 'prentice and of bad teachers generally."

To these criticisms, made by earnest men in kindly spirit, the school people have made replies without exhaustive examination. Now, let us see if their defence is well founded.

Attention is called to the table on page 19, entitled A Study of School Ages. It is furnished by a superintendent in a fairly representative city, and constitutes a section which, by the Board of Education, was ordered stricken out of the superintendent's annual report, because it was supposed to reflect on the schools of that city.

A glance at the table will show that it represents a complete working school system of all grades from the kindergarten through the high school, and includes 5,801 pupils. The number of pupils of each year of age is shown for every grade with totals. Theoretically, in a school supposed to be graded, if a child

* Pedagogical Seminary, June, 1891.

enters school at five years of age, he should reach the second grade at six, the third grade at seven, the fourth grade at eight, the fifth grade at nine, the sixth grade at ten, the seventh grade at eleven, the eighth grade at twelve, the ninth grade at thirteen, the high school at fourteen, and he should graduate from the high school at the end of the four years' course at nineteen; or, at least, he should not be more than one year older in entering any given grade than is indicated by the respective ages stated. Practically he is nothing of the kind, as the study will show. In fact, the pupils are considerably older.

In this table the full-faced figures indicate the number of pupils of normal age; the figures to the right of these full-faced figures may be said to indicate pupils over age; figures to the left, pupils under age.

For instance, in grade four, 85 pupils are of normal age; 11 are one year under age; 3 are eight years over age; 2 plus 3, or 5, are seven years over age; 24 plus 5, or 29, are six years over age; 56 plus 29, or 85, are five years over age; 61 plus 85, or 146, are four years over age; 96 plus 146, or 242, are three years over age; 139 plus 242, or 381, are two years over age; 178 plus 381, or 559, are one year over age. In the same way figures are given for each of the other grades.

A careful study of this table presents the following serious reflections:

1. Of the 5,801 pupils comprehended in this study, 1,254 (22 per cent) are of normal age for entering the various grades, 172 are one year under age, 3 are two years under age; 4,372 (75 per cent) are one year over proper entering age, 2,456 (43 per cent) are two

A STUDY OF AGES OF SCHOOL CHILDREN.

Full-faced figures indicate pupils of normal age; figures to the left of normal-age line, under age; figures to the right of normal-age line, over age.

Grades	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Totals	Grades
Kinder-garten	**67**	127	10	3	1																208	Kinder-garten
I	27	**409**	400	154	52	19	6		6	2			1								1076	I
II		34	**172**	258	158	59	24	5	6	2	2										720	II
III			8	**96**	213	176	98	55	28	19	12	1									706	III
IV				11	**85**	178	139	96	61	56	24	2	3								655	IV
V					9	**56**	144	140	109	68	28	5	1								560	V
VI						11	**57**	120	103	80	35	8	1								415	VI
VII							8	**67**	114	116	65	16	3								389	VII
VIII							2	23	**65**	90	78	24	4	1							287	VIII
IX								1	8	**51**	93	45	4								202	IX
High Sch. I X										9	**50**	63	73	40	13	6	1		1		256	High Sch. I X
High Sch. II XI											6	**34**	53	25	12	4	1		1		136	High Sch. II XI
High Sch. III XII												10	**29**	30	20	7	1	1	1		99	High Sch. III XII
High Sch. IV XIII													7	**8**	20	14	2	1	1		53	High Sch. IV XIII
Post Graduate														1	7	14	1	5	11		39	Post Graduate
Totals	94	570	590	522	518	499	478	507	500	493	393	208	179	105	72	45	6	7	15		5801	Totals

These returns represent a system of schools in Massachusetts when children may enter the first grade at the age of five. Schools admitting at six years should reduce their comparative tables to a common basis.

years over age, 1,204 (21 per cent) are three years over age, 548 (9 per cent) are four years over age, 235 (4 per cent) are five years over age, 91 are six years over age, 28 are seven years over age, 8 are eight years over age, and 1 is eleven years over age. Some minor corrections should perhaps be applied to these figures, as will be shown later on.

2. It will be observed that 41 per cent of these pupils enter the first grade at under six years of age (the normal age for entering this school's first grade is five); 29 per cent enter the second grade at under seven; 13 per cent, the third grade at under eight; 14.5 per cent, the fourth grade at under nine; 12 per cent, the fifth grade at under ten; 16 per cent, the sixth grade at under eleven; 19 per cent, the seventh grade at under twelve; 31 per cent, the eighth grade at under thirteen; 30 per cent, the ninth grade at under fourteen; 23 per cent enter the first year of the high school at under fifteen; 29 per cent, the second year of the high school at under sixteen; 39 per cent, the third year of the high school at under seventeen; and 29 per cent enter the fourth year of the high school at under eighteen.

3. This over age no doubt arises in small degree from irregularity in attendance, due to carelessness of parents or sickness of children. It is also partly due to the unfortunate necessity of some children to change from city to city where gradations are not the same. These, however, are minor factors in a healthy New England city where compulsory education is in force.

4. A principal factor in tending to this over age lies in the fact that instruction is not largely scientific—that is, it is not to any extent built on a study of

the child with individual adaptation of nutrition and culture to make him individually strong. *The opportunity to drop behind the class is always an individual opportunity; the opportunity to get ahead is almost always limited by class environment.* Between these two kinds of opportunity there is an abysmal difference. As schools usually go, it is ten times harder for a pupil to gain a grade than to lose one; ten times harder to rise than to fall. Never until the school is built fundamentally for the individual will this element of loss disappear.

5. The table also illustrates in large degree the poverty of the teaching in the lower grades. This poverty is of two kinds: first, the poverty of the teacher; second, the poverty of the subject-matter. Unfortunate indeed is the practice in most schools which recognises no promotion of teachers excepting that which places them in the higher grade. The primary schools, in the average, are the rewards of incompetence and inexperience. When in the garden does the growing plant need the best attention? At a time when the child needs the best culture, the primary school is impoverished that the teacher may be advanced to higher salary, and the children languish while another apprentice weakling is being trained to her work. No one can estimate the fearful loss to the child from being compelled to lose a year under an incompetent teacher. This rotten work carried forward into other years becomes a foundation on which no subsequent teacher can build a solid superstructure. Fearfully expensive is poor teaching.

The poverty of subject-matter is also responsible for much of the loss. While it is impossible to accu-

rately classify results according to these two factors, it is probable that much of the loss is due to the unfortunate subject-matter of beginning grades. Reading, for instance, in a primary school, is a poverty-laden study. It begins with abstraction, and prematurely consumes energies on very meagre results. The beginning pupil can study reading profitably only a small fraction of his time. Reading in the primary school can not be an exercise of self-activity to any considerable extent, and therefore should be left to a subsequent period when results will obtain more rapidly. The fact, shown by the table, that there are 570 pupils of normal age for the first grade but 1,076 pupils in that grade, indicates the tremendous losses to which reference is made. Practically it must take, in the average, two years for a child to pass over the meagre work of this poverty-stricken grade.

6. The totals at the bottom of the table show the success of the operation of compulsory law in keeping children in school, at least until the age of fourteen, when the law permits outside employment. That is, 570 are five years of age, 590 are six years of age, 522 are seven years of age, 518 are eight years of age, 499 are nine years of age, 478 are ten years of age, 507 are eleven years of age, 500 are twelve years of age, 493 are thirteen years of age, 393 are fourteen years of age, 208 are fifteen years of age, 179 are sixteen years of age, 105 are seventeen years of age, 72 are eighteen years of age, 45 are nineteen years of age, 6 are twenty years of age, 7 are twenty-one years of age, and 15 are twenty-two years of age. The number is fairly constant until the age of optional attendance begins, the mortality

losses being about offset by the accessions from private schools. The totals at the right indicate the diminution of opportunity. The pupils must spend, on the average, more than a year in any one grade. The compulsion of the law is not attended by the democratic opportunity which justice requires. An unfair advantage is taken of the imprisoned child.

7. Another element in this study presenting itself for reflection lies in the attempted enrichment of subject-matter which has come in recent years in the lower-grade schools. Every year something new is added to the course of study. The high school is now doing the work of the college of fifty years ago; and the grammar school is covering much of the former work of the high school. There has been enrichment without elimination; extension of work without extension of time, excepting perhaps in the interpolation of the ninth grade in many schools. I do not say that there is not compensation in all this; but let not the devotee of the graded school disguise the fact—he is gradually raising the age limit—the course of study under his plan calls for more than thirteen years of time.

Fundamentally, the principle of enrichment is correct. The man who has seen much of the world is better educated than the one who has seen little. The child loses nothing by facing a wealth of Nature. But enrichment must have the enriched teacher. The standards and ideals of older work will not answer the requirements of the new. There must be correlation, elimination, and correct method. With the teacher of training and versatility there can be endless enrichment without loss; but it can not be by text requirement.

The showings of this study of ages should give cause for profound reflection. The course of study, in most schools, originally provided for twelve years of study. The kindergarten has been added and the ninth grade interpolated, making a nominal gradation covering fourteen years; and yet the table shows that the course of study actually calls for two or three years of additional time. This perhaps does not entirely show in the ages of those who finally graduate, but it would be abundantly manifest if those who from discouragement drop out of the school could be taken into consideration.

There is a great loss in the detention of pupils too long in the elementary schools. The studies of the higher grammar grades and of the high school are so much richer and more culture-giving that pupils should have the earliest possible introduction to these schools. Indeed, it is a crime to keep younger children so long on the dry husks of most elementary education. For similar reasons it is important that students should reach the college not later than at eighteen years of age. It is discouraging to young people to come to the age of twenty or more to find there are still four years of the college and three years at the university between them and entrance on professional life. President Eliot's argument for the reduction of the college course to three years is therefore economically sound. Ambitious students should reach the university earlier. The possible marriage age of the student is abnormally high; it should be lessened. President Jordan's creed of opportunity to the common man also has important bearing on the argument. We can not bring the rich

values of higher opportunity to the common man if we deny him early admittance. In like manner, the elementary and the secondary schools must short-cut their methods and curriculum. There must be elimination of dead time and profitless tasks. The teacher must be more competent, the studies more enriched. The pupil must have unlimited opportunity to accomplish and to progress. We must find our way to enrichment and opportunity.

Concerning the showings of the above table certain questions will probably arise.

What is meant by the normal age of a grade pupil? I do not know that I clearly understand.

The normal age of a grade pupil is a hypothetical term forced by the nomenclature and practices of the graded school. The graded school of Massachusetts, for instance, presupposes a course of thirteen grades, each grade being planned to require nominally one year of time. The pupil enters the first grade at five years of age; and therefore, in terms of gradation, five may be said to be the normal age of the first grade, six years of the second grade, seven of the third grade, etc.

Are there no corrections to be applied to the showings of the table? Has not the discussion already intimated that there might be some?

The table does not show the fraction of the year. In many schools admittance to the first grade is only at the beginning of the year or semester; which, however, is no defence, for in the school of individual conservation every day is a beginning day. The greatest correction should probably be because pupils do not all come of age at the beginning of the school year; and

consequently the average age of pupils in a given grade may be half a year more than indicated in the table. Even with this correction the losses are enormously large, the corrected table showing more than two thirds of the pupils to be of over age.

Attention is called to the dangerous custom of planning so much for what is termed the average pupil, which fallacy is exceptionally apparent from a study of this table. For instance, the average age of pupils in each grade, even in this table, in many instances is only one step removed from a normal age—that is, the average age of the first grade is somewhere in the four-hundred group; but such customary manner of estimating by averages utterly loses sight of the immense number of individuals to the right of such average line. Says Dr. D. F. Lincoln, "The average does not justly represent the individual any more than the army ration corresponds to the appetite of each soldier."

How do you account for the showing that the percentage of loss is not so great in the higher grades as in the lower? From the table it seems that there is some recovery.

That recovery is apparent, not real. The school from which this table was taken is in a Massachusetts city, where the law compels attendance until the age of fourteen. When this limit of restraint was passed, many pupils gradually dropped from the school, the losses being mostly of those who were most discouraged. The ones who remained in school represent largely the survival of the most favoured.

Much criticism of the public schools has appeared because the pupils do not reach the high school. The

reply has almost universally been made, that it is because they do not remain in school. Does not this table show that it is because they are in the lower grades and can not reach the high school?

Precisely so. The figures to the right of the normal line indicate largely the losses of the school, and demonstrate the inefficiency of the graded system. Its failure lies in the facts: 1. That the beginning time is at the convenience of a mechanical plan, and not at the convenience of the pupil. 2. It ignores the working strength and general experience which come with maturity. 3. Its progressions are by the class. Under its practices losses are easy, but recovery is extremely difficult. It lacks easy adjustment. 4. It plans its work for the average pupil, which is an impersonal and impossible factor. 5. It does not hold its own by merit, but by compulsory enactment. Other details of its inefficiency will appear as we proceed with this discussion.

Is it not pretty generally claimed that the graded school system affects a great gain by its classification of pupils of fairly equal ability into the same school or room? Does not this effect economy in the teacher's effort and advantage to all concerned?

There is no objection to classification, provided it is of flexible character. Certainly there is some advantage in gathering into working sections pupils of kindred interest and, to a certain extent, of the same general working strength. What is contended against is the assumption that the graded organization, as operated almost universally in the public schools, meets the requirements of the needs of individuals. I care not how well a school may appear to be graded at the beginning

of the year, it will always contain pupils who can do far more work than others, in addition to which are other potent factors which must not be disregarded. There is far more difference in the working abilities of the pupils of a given class in a graded school than is generally estimated. The graded school does not grade.

In illustration of this statement attention is called to the chart on the opposite page, presenting the results of a study of the differences in working abilities of an actual class of twenty pupils.

This chart represents the units of work in Cæsar accomplished individually by twenty free workers in one hundred and fifty aggregate hours of time. The class was in the Central High School of Pueblo, Colorado, the teacher being Miss Ida Brock Haslup. The work was distributed through one hundred days, which, however, included some holiday time; the period was an hour and a half per day. All the work was done in the Latin laboratory, there being no home preparation of lessons. The reading of Cæsar text was attended by the usual collateral work in grammar, composition, and historical reference. The method was individual, so that each pupil had practically the value of the entire period, there being no interruption of the general class while one individual was qualifying to his teacher. Each pupil not only studied the text, but qualified by recitation and quiz on every sentence of it. The test of advancement was thoroughness in each unit, without which the pupil could not pass on to a succeeding chapter. It will therefore be seen that the amount of work accomplished, the work being done entirely in the teacher's presence, gives an unusually good opportu-

TABLE SHOWING DIFFERENTIATION IN WORKING ABILITY OF TWENTY FREE STUDENTS WORKING IN CÆSAR THROUGH AN AGGREGATE PERIOD OF 150 HOURS.

Pupil	Book I. 54 Chapters.									Book II. 85 Chapters.								Book III. 29 Chapters.							Book IV. 38 Chapters.					
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	156
A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
B	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
D	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											
E	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X														
F	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X													
G	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X														
H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X															
I	X	X	X	X	X	X	X	X	X	X	X	X	X	X																
J	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
K	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X														
L	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X													
M	X	X	X	X	X	X	X	X	X	X	X	X	X																	
N	X	X	X	X	X	X	X	X	X	X	X	X																		
O	X	X	X	X	X	X	X	X	X																					
P	X	X	X	X	X	X	X	X	X																					
Q	X	X	X	X	X	X	X	X	X																					
R	X	X	X	X	X	X	X	X	X	X	X	X	X	X																
S	X	X	X	X	X	X	X	X	X	X	X	X																		
T	X	X	X	X	X	X	X	X																						

nity to measure the differences in working ability in this particular subject.

The teacher's record of advancement was more extended than this sheet, a pupil's record continuing for several pages, each chapter in the four books of Cæsar being represented by its own column for marking the limits of advancement. On a chart like this it is impossible to represent so many columns, therefore the chapters are grouped by fives. A check (x) in column 110 indicates that the pupil has qualified to the end of Chapter CX (Book III, Chapter XXI).

It will be noticed that Pupil A covered 110 chapters; B, 90 chapters; C, 140 chapters; D, 95 chapters; E, 80 chapters; F, 85 chapters; G, 80 chapters; H, 75 chapters; I, 70 chapters; J, 90 chapters; K, 80 chapters; L, 85 chapters; M, 65 chapters; N, 60 chapters; O, 45 chapters; P, 45 chapters; Q, 45 chapters; R, 70 chapters; S, 60 chapters; T, 40 chapters.

Do you mean to say that these twenty pupils represent an average class in a graded school?

I mean to imply just that, and, furthermore, a class where pupils study Latin not by requirement but by choice. There being no compulsion, the table does not represent other pupils, known in many schools, who would make the range even greater. Yes, the class is a representative one, excepting that the pupils here are given opportunity to accomplish what is best for each individual case.

This table will be discussed more fully later on. It is presented here to demonstrate effectually that there is a much wider range in the differentiation of the working abilities of pupils than is generally supposed.

This differentiation of abilities represents a differentiation of needs which the graded school is not meeting. If one pupil in a working group can cover one hundred and forty chapters of Cæsar in the same time required by another for the accomplishment of forty chapters, then equity demands that he be not held back to mark time for the slower pupil's benefit. Again, if the Pupil T requires one hundred and fifty hours to do his forty chapters well, then every principle of justice demands that he should not be prematurely hurried forward. Furthermore, he should not be degraded in the eyes of the school because he does need more time. There should be no tail of the class nor losses from the school's playing "Crack-the-Whip." The study shows conclusively that even in a "well-graded class" there are some pupils who can do three times as much work as others.

Sanitarians will ask the question:

How did this working plan meet the needs of pupils sick and well, to which reference has already been made?

The plan met the physiological needs of the pupils far better than the graded school can. For instance, one of the girls was absent because of sickness for two months. While sick, she was not worried about keeping up with the class, and returning, took up the work just where she had left it. Another girl was at that critical period in adolescence when all the life energies seem centred in vital organic changes. She needed accommodation and found it. Another pupil was of consumptive tendency, and had opportunity to do just what he could. The plan permitted some to gain an

education who otherwise would have been exiled from the school. Some of these pupils probably did not work the full one hundred and fifty hours, but as none of these are represented in the maximum or minimum accomplishments of work, their inclusion in this study does not affect the showing of extreme range of differences in working abilities.

The details of this method will be discussed in a subsequent chapter.

Why in this study have you taken a class in Latin? Why not have taken a class in some other subject, say in a lower-grade school?

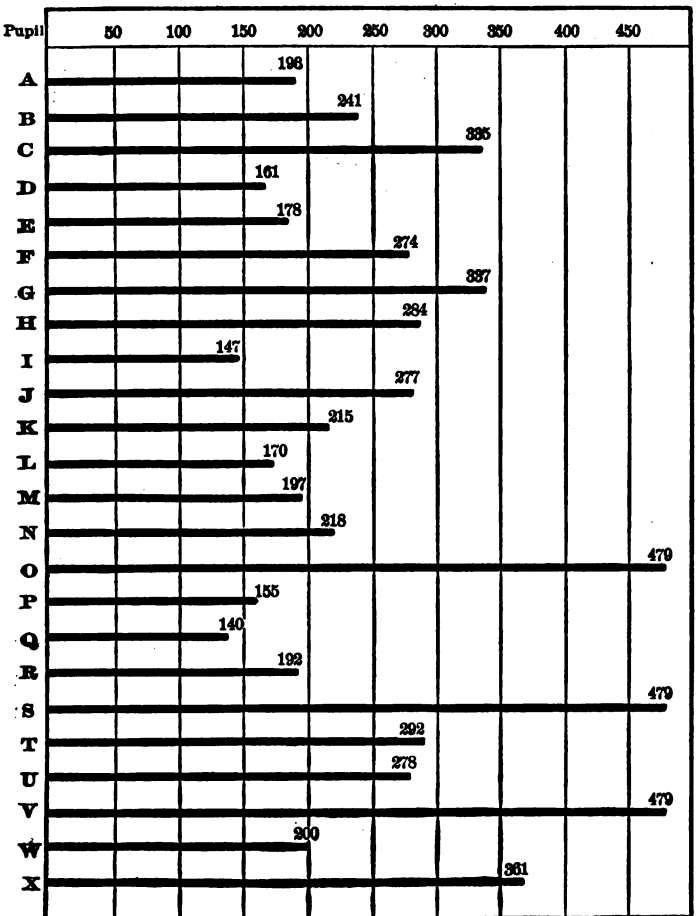
A class in Latin has been taken for this representation because no other subject of study gives us so well a fairly uniform unit of work. When a chapter in Cæsar is mentioned, every one knows what is meant. This is not the case in arithmetic, where problems or sections or pages may vary greatly in difficulty and length of time required; nor would it be the case in grammar, geography, or many other branches. In Cæsar, five or ten chapters represent fairly well that many units or norms, and therefore give a satisfactory standard for measurement and comparison.

However, other tables will throw light on this question of differences in working ability. Indeed, almost every subject taught in the public schools can be abundantly illustrated by similar advancement sheets.

On the opposite page is a table representing the comparative advancements of twenty-four pupils working together in a class in the last grade of the grammar school, before admission to the high school. The study is arithmetic, the subjects covered being the more ad-

DIFFERENTIATION OF WORKING ABILITIES IN ARITHMETIC.

Class of 24 pupils—another class also in room.



vanced applications of percentage. In this case the advancement of each pupil is represented by a line of lineal measurement, showing the number of pieces of work covered. The chart is planned to show a field of five hundred pieces of work.

Do you mean to say that there is that much difference in pupils in a well-graded grammar school?

The showing is just that. The working sheets from which this table was compiled were furnished by Grammar Master Wilbur F. Nichols, then of Holyoke, Massachusetts, but now supervising principal at New Haven, Connecticut. The class represented was as well graded as classes usually are in any school. The pupils had all been working with uniform advancement until entrance on this experimental test; then they were permitted to travel, under careful supervision, each at his own rate of speed. The study began at a uniform time and stopped at a uniform time. It will be seen that Pupil A made an advancement of 193 units; B, 241 units; C, 335 units; D, 161 units; E, 178 units; F, 274 units; G, 337 units; H, 284 units; I, 147 units; J, 277 units; K, 215 units; L, 170 units; M, 197 units; N, 218 units; O, 479 units; P, 155 units; Q, 140 units; R, 192 units; S, 479 units; T, 292 units; U, 278 units; V, 479 units; W, 200 units; X, 361 units.

This test was not simply one of quantity, for the school in which it was taken was well known for the high quality of its work in arithmetic, Mr. Nichols being the author of a series of arithmetics.

It should be remarked once more that, while this table of work in arithmetic illustrates well the point being made, the comparisons are not so definite as in

the representation of the Latin class, because the unit is more variable. However, it is probable that this fact will only strengthen the showings in the grammar-school tables; because, in all probability, the stronger pupils covered more advanced and therefore more difficult work. The range in working abilities would therefore be greater than is shown in this table.

Very few persons, even teachers, realize that there can be so great a difference in pupils in a well-graded school. This misconception is very common, and arises from the fact that very few tests have ever been made to determine results such as these. There is scarcely a so-called well-graded school in the land which, given opportunity to depart from uniformity, will not reach practically the same showing of the enormous differentiation in the working abilities of pupils; and this is just as true of the college and the university as of the public schools. If schoolmen would only cease a little from their profitless ordinary examination of children and turn the investigation on their own methods, they would reach some surprising results.

A Study of College Entrances.

The table on page 36 shows the proportion of the regular students entering Harvard College, who have come from the public schools during the twenty-five years, 1871–1894.

It will be contended that Harvard College represents, in its major constituency, only a section of the country. Very well; it represents New England, and New England is supposed by many people to represent

Year.	Total entrances.	From public schools.	Percentages from public schools.
1871.....	203	70	34.48
1872.....	183	50	27.32
1873.....	227	72	31.71
1874.....	200	54	27.00
1875.....	258	80	31.00
1876.....	225	51	22.66
1877.....	239	86	35.98
1878.....	232	80	34.48
1879.....	245	72	29.38
1880.....	233	69	29.61
1881.....	230	69	30.00
1882.....	281	82	29.18
1883.....	268	65	24.25
1884.....	286	63	22.03
1885.....	264	73	27.65
1886.....	302	96	31.79
1887.....	310	78	25.16
1888.....	331	94	28.40
1889.....	352	98	27.56
1890.....	402	95	23.63
1891.....	463	128	27.64
1892.....	506	135	26.67
1893.....	469	142	30.37
1894.....	470	126	26.95

From report of President of Harvard University, 1894–'95, p. 11.

the best of the public-school system. Nowhere else is so much money expended for schools; nowhere else is the course of study so long; and nowhere else have the high schools lent themselves so completely to college preparation. The result, at the present time, is that the high schools, as shown by this table, furnish less than twenty-seven per cent of those admitted to Harvard College. Notwithstanding that the high schools of New England for thirty years have been, more and more, making of themselves fitting schools, their contribution to Harvard College, during this time of greatest endeavour, has been declining. The average

young person who seeks the best training goes where he can find the greatest value. Either the high schools should qualify themselves to compete with private institutions, or they should cease to bend everything to college preparation.

CHAPTER III.

THE LOSSES OF THE SCHOOL (*continued*)—THE HEALTH OF SCHOOL CHILDREN.

If education is ever to aim at that which is complete and best, it must comprehend the entire child. Fundamental in this, it seems right to expect that the product of the school shall be the individual blessed with good health. To that end school provisions and practices must not be simply permissive of health, but they must contribute directly to its realization. Indeed, the moment the school begins to encroach on the sacredness of this domain, just then its usefulness is subject to serious question. The first test, then, of an educational system is, To what extent does it confer degrees of conditioning good health?

Certainly, the school as at present constituted can not be held responsible for the entire defective physical condition of a large percentage of school children; but our system of child culture, with all it comprehends, is responsible, and of this system a large factor is the school.

Now what is the condition of the health of school children under the influence or protection of our present system of education? Let us consider first the eye, which is said to be a fair type of the general price which physical health must pay to defective culture.

Says Kotelmann: "I have examined a great many Lapps, Calmucks, Patagonians, Nubians, Somalis, and Singhalese, but I have never found a single near-sighted person either among the children or the adults. Myopia did not exist in New Zealand till it appeared among the natives after the introduction of civilization." *

In contrast with this remarkable statement, which is abundantly substantiated by other investigations among uncivilized peoples, how worthy to command our attention are the findings of eminent men like Cohn, Erismann, Conrad, Agnew, Loring, Derby, Callan, Smith, Allport, Allen, Swift, and others, who have made expert examination of the physical condition of school children!

Probably the most extensive investigations that have been made are those reported by Dr. Hermann Cohn in his admirable Hygiene of the Eye. The earnest consideration given by the Germans to this matter is worthy of profound respect. Perhaps no discussion on this subject, since the publication of Dr. Cohn's, has been so thoroughly scientific.

Dr. Cohn's original investigations covered 33

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* "Short-sightedness is one of the evils of modern civilization, and in its distribution depends to no slight extent on the present modes of education. Congenital near-sightedness is probably quite rare, since in infants' eyes the myopic refraction is the exception." (Reference Hand-Book of the Medical Sciences, vol. v, p. 87.)

"Myopia is seldom congenital. All experts remark that it is rarely found in children of less than five years of age. All agree that it arises from too steady application of the eyes to close objects, especially during the school age." (Dr. Hermann Cohn, in Popular Science Monthly, vol. xix, p. 54.)

schools enrolling 10,060 pupils in the city of Breslau. He found an average of 19.2 per cent of defective sight among the pupils of the town school. The percentage of increases in myopia through the several grades is shown by the following table:

*Percentages of Myopia in the City of Breslau.** (*Cohn.*)

School.	Pupils.	Grades from lowest to highest.								Average per cent.
		8	7	6	5	4	3	2	1	
Five village schools..	1,486	...	...	...	...	...	1	2	3	1.4
Twenty city elementary schools	4,978	...	...	...	...	...	3	4	10	6.7
Two advanced schools for girls	834	1	2	7	8	6	16	12	19	7.7
Two grammar schools	426	...	...	...	10	6	13	9	15	10.3
Realschule (z. heil. Geist).....	502	...	...	7	12	25	27	25	59	19.7
Realschule (z. Zwinder)	630	...	...	11	21	13	23	28	29	
Gymnasium (Elizabeth).....	532	...	...	11	17	19	31	48	65	26.2
Gymnasium (Magdalenen)	663	...	...	14	19	28	30	35	47	

Grade 1 is the highest in each school respectively. The different kinds of schools have not a continuous gradation, as in this country.

Dr. Cohn says: † "It is evident—

"1. In village schools the percentage of short-sight is very low, while in the town school the number of

* Reference Hand-Book of the Medical Sciences, vol. v, p. 86.

† See Cohn's Hygiene of the Eye, wherein is given a valuable discussion of his findings, with reports of the examinations of the eyesight of fifty thousand school children.

near-sighted scholars constantly increases with the grade of the school, from the lowest to the highest.

"2. In every school the number of near-sighted pupils increases from class to class. More than half of the highest class are near-sighted.

"3. There is an increase in degree of myopia from class to class in all schools. The average degree differs but slightly for the two sexes."

Unfortunately, examinations of this kind have never been made in the United States in so thorough and scientific a manner as is done in European countries. A few attempts have been made, which, while they have not followed the same pupils through a series of years, have nevertheless shown that the same general results are to be found in American schools.

Dr. C. R. Agnew,* of New York, was led to an investigation in this country by a feeling of distrust in the applicability of Cohn's conclusions to the conditions of American schools. He thought the findings of Cohn might be largely due to peculiarities of German dietary, differences in school buildings, school systems, school hours, and other factors. With competent assistance a careful examination was made of the eyes of 630 school children in Cincinnati, 549 in New York, and 300 in Brooklyn, with results which strikingly confirmed the conclusions of Dr. Cohn.

Drs. Loring and Derby examined many children in the New York schools and found among scholars six to eight years of age 3.5 per cent of myopia; nine to ten years of age, 5 per cent; eleven to twelve years of age, 10 per cent; fifteen to sixteen years of age, 15 per

* Medical Review, 1877, p. 34.

cent; seventeen to eighteen years of age, 20 per cent; eighteen to nineteen years of age, 25 per cent; and twenty to twenty-one years of age, 26.8 per cent.*

Dr. Ward McLean, referring to the examinations made by Dr. Edward G. Loring and Dr. Peter A. Callan, of New York, Dr. Lucian Howe, of Buffalo, and Dr. Hasket Derby, of Boston, says: †

"The uniform drift of results in all the examinations here referred to, and relating to over 26,000 individuals, may be regarded as sufficiently establishing the following proposition:

"1. That, as a rule, near-sightedness originates in school life.

"2. That a large percentage of the scholars are thus afflicted, the percentage progressing with the stage of advancement in study.

"3. That near-sight is progressive in degree according to the length of school experience."

Dr. W. F. Smith, in reporting an examination of school children in Chicago, presents the following table: ‡

Eyes Examined.	Age.	Percentage of myopia.
220	6 to 8	4.09
230	8 to 10	5.65
346	10 to 12	10.98
814	12 to 14	12.89
204	14 to 15	16.17
242	15 to 16	17.76
245	16 to 18	23.26
79 High school	18 to 19	25.31
48	19 to 20	27.08

* Reference Hand-Book of the Medical Sciences, vol. v, p. 87.

† Popular Science Monthly, vol. xii, p. 74.

‡ Reference Hand-Book of the Medical Sciences, vol. v, p. 87.

Dr. Frank Allport, of Minneapolis, says: *

"The report of our first annual examination (1898) shows that 25,696 children have been tested, of whom 8,166, or 32 per cent, were deemed defective. Among these, 6,451 eyes were found possessing a vision of $\frac{19}{20}$, or a little worse than normal; 2,256 eyes had a vision of $\frac{18}{20}$; 1,214 a vision of $\frac{17}{20}$; 1,130 a vision of $\frac{16}{20}$; 745 a vision of $\frac{20}{100}$; 447 a vision of $\frac{20}{200}$; and 43 eyes were practically blind; 4,472 children could not use their eyes to a reasonable extent without eye-tire, headache, etc."

An examination by Dr. H. P. Allen † of 4,700 pupils in the public schools of Columbus, Ohio, reveals 1,175 cases of defective vision (25 per cent), of whom 936 pupils (20 per cent) were afflicted in both eyes. The investigation also found a diminution of good eyes from 80 per cent in the primary grades to 66.6 per cent in the senior class of the high school.

Edgar James Swift reports ‡ the results of a valuable examination of 340 students and pupils in the normal school and model school at Stevens Point, Wisconsin. Speaking of the 257 students in the normal school, he says: "Of the 37 students with normal vision of $\frac{20}{20}$, 5 have astigmatism without hyperopia, 10 hyperopia without astigmatism, and 14 have both defects; while 19 have muscle trouble with or without other difficulties, and only 3 have no evident defects."

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* Educational Review, vol. xiv, pp. 150–159.

† Science, vol. xii, p. 208.

‡ Pedagogical Seminary, vol. v, p. 202.

Vision of Three Hundred and Forty Students at Stevens Point, Wis.

Vision.	Normal dept.	Grammar dept.	Intermediate and primary dept.
	Per cent.	Per cent.	Per cent.
$\frac{20}{10}$ or better	14.39	21.42	19.04
$\frac{20}{15}$ or better but not so good as $\frac{20}{10}$	51.75	54.76	57.14
$\frac{20}{20}$ or better but not so good as $\frac{20}{15}$	12.06	9.52	14.28
$\frac{20}{30}$ or better but not so good as $\frac{20}{20}$	7.78	9.52	2.38
$\frac{20}{40}$ or better but not so good as $\frac{20}{30}$	2.72	2.38	....
$\frac{20}{120}$ or better but not so good as $\frac{20}{40}$	2.72	2.38	4.76
$\frac{20}{200}$ or better but not so good as $\frac{20}{100}$	4.28	....	2.38
Below $\frac{20}{200}$	4.28	....	....

Dr. Swift further says, "The results of this investigation would seem to justify the conclusion that about 50 per cent of all pupils have at least one eye whose vision is not normal."

Compared with this table of Dr. Swift's, how significant is the statement made by Dr. P. A. Callan! * "In 1874 I examined the eyes of the scholars attending two negro schools—over 500 pupils. Their ages ranged from five to nineteen years. One of these schools showed 3.4 per cent of near-sight, the other only 1.2 per cent near-sight."

Says Dr. Donders, the eminent Dutch oculist:

"I maintain then, without hesitation, that the short-sighted eye is the diseased eye.

"It is then in youth that injurious exciting influences must be most carefully guarded against.

* Catholic World, vol. xl, p. 559.

"Progressive short-sight is in every case ominous of evil for the future.

"Not unfrequently at the age of fifty or sixty, if not earlier, the power of sight, either from detachment of the retina, from hæmorrhage, or, lastly from atrophy and degeneration of the yellow spot, is irretrievably lost."

Remarks the reference Hand-Book of the Medical Sciences: *

"There are now on record the figures obtained from over 150,000 scholars. The results show that myopia increases steadily from the lower to the higher classes, both in percentage and in the average of its degree. The numerous reports of school examinations by others confirm, without exception, Cohn's results. They all show a steady increase in myopia on advancing from grade to grade. In this country, examinations have not been made so extensively as in Germany; but, as far as they go, they show a similar increase in myopia with advancing education."

Says the Northwestern Monthly: †

"There is a fixed conviction that the increase of near-sightedness during school life is due to the conditions of school life. After allowing for the influence of all other factors, there is undoubtedly much to be charged against the account of school education."

"There seems to be no longer room," remarks the editor of the Journal of Education,‡ "to question the statement that near-sightedness increases alarmingly

* Vol. v, p. 86.

† Vol. viii, p. 86.

‡ Journal of Education, November 30, 1899.

with school children. It should cease to be true. The lifetime affliction of near-sightedness is not to be compensated by any mental discipline the schools can ever give."

Ingalls declares that "it is a waste of time to send a child to school when his eyes are not in proper condition to do the work assigned. This language is not one whit too strong. We have often felt the profoundest pity for children who, handicapped by any ocular defect, have been goaded by teacher, schoolmates, and parents into nervous collapse." *

Surely the remedy, as Callan so well puts it, must be something better than the "good old times when a boy complained of not seeing, and then his parents whipped him, and the master whipped him, and then he saw."

Granted the excessive amount of near-sightedness which too often attends the getting of an education, How can we lessen the price which must be paid? Is not this unfortunate wreckage the result of the general conditions of life as well as of the school?

Undoubtedly the conditions of the home and of modern life are causes to a considerable degree of the defective vision of school children; but, in the light of the testimony given, the school can not escape responsibility for its part. Besides, it must forever be the mission of the school to bring about conditions favourable to good health, in the home and elsewhere.

In referring to the repeated examinations made by

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* The American Year-Book of Medicine and Surgery, 1897, p. 893.

Florchutz at Coburg, Dr. Cohn remarks, "The investigations of this last are of the highest interest, because they establish a decrease in the number of myopics in the newly built school palaces." This certainly confirms the inference that the school building is responsible for much of the near-sightedness of children and adults. But Dr. Cohn's observation does not go far enough, for it does not include the unfortunate results of unhygienic methods of instruction, hours of study, order of exercises, and other conditioning factors. In what ways the school of the twentieth century may do something toward the solution of this question will be taken up later on in our Construction of the School of Good Health. The first thing, however, in the solution of the problem is to face it; and this the schoolmen have never yet done in any very earnest and scientific manner.

As has already been remarked, the schools can not be held accountable for the causation of all the physical impairment in their constituency; but they are responsible for permitting much of it to continue. It must be the first mission of the school to promote health. If this can not be done in the school as at present organized, then we must reorganize. It would be better to go back to the child culture of Plato's Republic than to ask the child to lay down his good health as the price of a liberal education. If education is to mean anything at all it must mean everything. It must comprehend the whole man; and the whole man is built fundamentally on what he is physically.

Undoubtedly much of the child's condition is due to his home environment; but even in this field it is the

mission of the school to suggest as much in the line of physical improvement as has been deemed its part in the intellectual. As far as concerns the child's interests, the school and the home must be co-ordinated; and for this the home must look to the school for leadership. Education, then, must take on a much higher significance than is the case in the present. Great problems are to be solved, and the solution must come largely from the school. When we consider the superior physical childhood of Spartan education, of savagery, or even of Mormonism, the question presents itself, What has modern civilization to offer to help solve the problem of better health for the school children of America?

There is also a very large amount of hypermetropia in the schools. Conrad at Königsberg (47.47 per cent of 3,066 eyes examined), Kotelmann at Wandsbeck (48.23 per cent out of 566 eyes), and Erismann at St. Petersburg (67.8 per cent), have found a large percentage of far-sightedness* among younger school children; but this is not a matter of any great concern, as the natural condition of young eyes is hypermetropic. Indeed, it is better to find a large percentage of hypermetropia in a school than emmetropia (normal condition), owing to the correction that comes later on.

Spinal Curvature.

During the period of school life the bones of the body are soft and yield themselves readily to the influences of posture and habit, thus giving opportunity

* Kotelmann's School Hygiene, p. 241.

for the correction of body defects under proper training, or for the beginning and augmentation of malformations which may not show much in the present, but will be a source of distress and unhappiness in later life. If a boy's shoulder can be raised or lowered three inches under two or three months of careful training in the school, how responsible is the school for failure to recognise and to correct the spinal curvature, which is so largely the result of unhygienic furniture, unfortunate hours of study and habits of sitting, rigid discipline, and methods of instruction! A scientific examination will reveal a large amount of curvature of the spine which in some way has escaped detection—largely, perhaps, because the person so afflicted is not himself conscious of this beginning and unpromising difficulty.

Dr. Stuart H. Rowe, in his excellent work on The Physical Nature of the Child, presents the following figures * showing the number of cases per thousand of a form of spinal curvature (scoliosis) found in school children of German schools by Eulenberg:

From birth	to	2	years	.....		5	cases.
"	2	years	to	3	years	.....	21	"
"	3	"	to	4	"	.....	9	"
"	4	"	to	5	"	.....	10	"
"	5	"	to	6	"	.....	33	"
"	6	"	to	7	"	.....	216	"
"	7	"	to	10	"	.....	564	"
"	10	"	to	14	"	.....	107	"
"	14	"	to	20	"	.....	28	"
"	20	"	to	30	"	.....	7	"

* Rowe's Physical Nature of the Child, p. 154.

Says Dr. Rowe, "It will thus be seen that 920 of the cases out of the thousand occur between the ages of six and fourteen, a tremendous evidence of the unhygienic treatment of children by the school."

The following representative table,* showing cases and percentages of spinal curvature among school children as found by Dr. Krug, will be of interest:

Spinal Curvature. (*Krug.*)

Age.	Boys examined.	Cases.	Percentages.
8– 9¼	86	10	11.5
10–10¼	102	17	16.5
11–11¼	102	29	28.0
12–12¼	214	59	27.5
13–13¼	120	43	35.0
14–16¼	71	23	32.5

Dr. Kotelmann, in his discussion of this subject, says: † "Many facts point rather to the conclusion that most scolioses are due to certain conditions of school life. Schildbach says directly from his own wide experiences, 'By far the greater number of scolioses originate during the school period.' Klopsch reaches the same conclusion—namely, that the majority of malformations are produced between the tenth and fourteenth years of life. Guillaumé found, among 731 pupils in Neufchâtel, 218 with incipient scoliosis. In Nuremberg, 15 per cent of the school population were afflicted with spinal curvature, and in Munich about 7 per cent of 2,128 school children. In Dresden, 344, or 24 per cent of 1,418 pupils in the common schools

* Kotelmann's School Hygiene, p. 312.

† Ibid., p. 311.

between the ages of eight and seventeen, were found by Krug to have scoliosis."

"The sitting posture, at best, is not a safe one for children and delicate individuals to occupy continuously. The influence of gravitation, however, applied to the spinal column, is one which it is difficult for so movable a structure to resist, so that the tendency to the production of abnormal curves is always great, and increasingly so the longer the posture obtains." *

"More and more," says Baginsky,† "does the opinion gain ground, particularly among surgeons, as the result of their anatomical and physiological studies and practical observations, that the origin of the most serious of all curvatures of the spine—the lateral curve —is due, in the great majority of cases, to the influences of school life on youthful organisms."

General Physical Debility.

The effects of bad posture in school and work under unfortunate conditions, of long hours and outside study, of unhygienic methods of instruction, of failure to recognise the physiological needs of pupils at periods and times of special stress, undoubtedly tend to encourage physical degeneracy where the school should stand for health and strength. This gives rise not only to the large amount of defective vision and spinal curvature already considered, but also to lung weaknesses and heart irregularity, to nervous and digestive diseases, and many other incipient stages of physical deteriora-

* Mosher. Educational Review, vol. iv, p. 346.

† Deutsche Medizin. Zeitung, 1888, p. 529.

tion. Education can never be regarded as truly scientific until it guarantees to every child better health in consequence of his attendance upon the school. Has the pursuit of an education realized this in the past?

In an examination of the schools of the better classes in Copenhagen in 1881, Dr. Hertel * found 31 per cent of 3,141 boys and 39 per cent of 1,211 girls suffering from chronic debilitating diseases, the acute diseases not being taken into consideration, the highest percentage being reached at twelve years of age.

A royal commission made an investigation of the schools of Denmark in 1882 and found † 29 per cent of 17,595 boys and 41 per cent of 11,646 girls to be in chronic ill health, the highest percentage (51) being reached at the age of thirteen.

About the same time a commission was appointed to make a similar examination of health conditions in the schools of Sweden, with results as follows: ‡ Of 11,210 boys in the higher common schools, 44.8 per cent were found to be sickly, the highest percentage (50.2) being in the Latin section. The proportion of particular complaints was: Headache, 13.5 per cent; anæmia, 12.7 per cent; nose bleed, 6.2 per cent; loss of appetite, 3.2 per cent; scrofula, 2.7 per cent; nervousness, 2 per cent; curvature of the spine, 1.5 per cent; near-sightedness, 15.2 per cent; and unspecified, 9.9 per cent. In examining 3,072 pupils of the higher schools for girls, the commission found 65.7 per cent to be suffering from more or less chronic diseases or

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* Maine State Board of Health Report, 1892, p. 91.

† Ibid. ‡ Ibid., pp. 92, 93.

deviations from health, with percentages as follows: Anæmia, 36.6; nose bleed, 6.8; nervousness, 6.5; deficient appetite, 12; short-sightedness, 11.5; spinal curvature, 10.8; scrofula, 5, etc.

Dr. James Crichton-Browne, in an examination of 187 high-school girls, well fed and clad and cared for, and ranging from ten to seventeen years of age, found as many as 137 complained of headaches, which in 65 instances occurred occasionally, in 48 frequently, and in 24 habitually. In his report * he says: "Two thirds of high-school girls will attest that the hardest part of their work—preparation, which involves the opening of new ground, and advance on what has been already learned, and effort in surmounting obstacles—has to be performed in the evening, when they are already worn out, at the very time when, in the cycle of daily life, their brains are least capable of exertion. And no inconsiderable number of high-school girls will attest that this arduous work of preparation is often carried on until ten, sometimes even eleven o'clock at night."

Remarks Sir Richard Owen: "Children have no business with headache at all; and, if you find that these occur frequently in any school, you may depend on it there is something wrong there."

A special committee appointed in 1881 by the Board of Education of the city of Cleveland to make some investigations concerning the health of the graduates and pupils of the high schools of that city, made a very suggestive report.

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* Sex in Education. Educational Review, vol. iv, p. 164.

*Health Record of Forty Boys who left the High School, 1880–'81.**

Health Conditions.	When entered.	At school.	After leaving.
Good	85 per cent.	45 per cent.	70 per cent.
Fair	10 "	17.5 "	24 "
Rather poor	5 "	5 "	
Poor	.....	10 "	5 "
Quite poor	.....	15 "	
Very poor	.....	7.5 "	

While in school the health of 50 per cent of the boys was not so good; 23 per cent lost appetite; 10 per cent lost sleep; 45 per cent had headache; 23 per cent had weak eyes; 23 per cent left school wholly or in part on account of ill health.

Health Record of Eighty-five Girls who left the High School in 1880–'81, and Eleven who left in 1879–'80—Ninety-six in all.†

Health Conditions.	When entered.	At school.	After leaving.
Good	73 per cent.	17 per cent.	35 per cent.
Fair	22 "	9 "	25 "
Rather poor	5 "	7 "	12 "
Poor	.....	5 "	18 "
Quite poor	.....	12 "	1 "
Very poor	.....	48 "	7 "

Two girls died while members of the school, accounting for the loss of two per cent in the last and next to the last columns.

While at school, the health of 80 per cent of the girls was not good; 46 per cent lost appetite; 27 per cent suffered from sleeplessness; 72 per cent had headache;

* Boston Medical and Surgical Journal, vol. cv, p. 486.

† Ibid.

52 per cent had backache or sideache; 44 per cent had nervous troubles; 75 per cent left wholly or in part on account of ill health; 52 per cent complained of stair-climbing; 36 per cent were troubled with weak eyes.

Says Rowe: * "Tuberculosis, rickets, bronchitis, catarrh, and headaches are aggravated, if not brought on, by impure air; chorea, by fatigue of the muscles; spinal diseases, by bad posture in sitting or in writing; indigestion and constipation, by too much restraint and sedentary habits; bad eyes, by bad positions of books, paper or light; nervousness, by too much pressure, too much worry, and last, but by no means least, by nervousness in those about them, where it is possible that the teacher is at fault."

Dr. Young, in his exceptionally valuable report, remarks: † "There can hardly be a doubt that the faulty sanitary conditions of many school buildings and unwise methods of teaching have much to do with laying the foundations of future disease. . . . Digestive diseases, initiated in the school, often render the individual an invalid or a semi-invalid for life. The combination of such influences as bad air, overheating, stooping position and pressure upon the abdominal regions, and mental strain, are entirely capable of introducing these troubles."

Dr. G. Stanley Hall also adds testimony: ‡ "When a child begins to go to school the change of his environment is very great. Instead of constant activity,

* Rowe's Physical Nature of the Child, p. 89.

† Maine State Board of Health Report, p. 99.

‡ Report of Proceedings Department of Superintendence, 1892, p. 163.

he must now sit still and keep still; instead of moving his hands and arms freely, the strain of effort is now focussed upon the very few tiny, pen-wagging muscles. The eyes, instead of moving freely, are confined in the zigzag treadmill of the printed line. It is no wonder, therefore, that the child so commonly loses weight on first entering school; that short-sightedness and other eye troubles increase almost regularly through the school period; that headaches, anæmia, scoliosis, defects in development if not signs of disease, appear in the stomach, heart, and lungs, and especially in the nervous system, the gradual deterioration of which is hard to recognise."

Says Dr. Agnew, in concluding his excellent article in the New York Medical Record: * "It seems to me that the very etymology of the word education enforces the idea that the child is to grow better and stronger up through his life, and that by proper regulation of his diets and management at home, by properly lighted school rooms and properly constructed desks, and a better regulation of his hours of study, he should reach a much higher type of life when he has reached the age of twenty-five years than when he has just been taken in hand with a view of giving him book knowledge. We certainly should not damage the eye in the process of education, and I believe that the damage done the eye is to be taken as an index of that which is done to other organs of the body."

There are many other phases of the question of the effects of school life on the physical health of the child,

* New York Medical Record, 1877, p. 36.

which demand serious attention; but the data and arguments already presented will abundantly substantiate the statement that our present methods of education are too expensive. Health is a prime requisite in the school. It is the foundation on which everything else must be built.

In the light of this discussion, does it not seem that a school should be constructed that would in no way rob man of any of his natural glory? There is absolutely nothing in the legitimate field of intellectual activities that need deteriorate physical health. Remove the incentives to cram and overtension, give the school children pure air, freedom of movement, good food, and plenty of sleep, vitalize their work by living interest, and it is simply remarkable how much mental activity the brain will sustain and how such activity will react in producing health. The longevity of our great scientists and literary men abundantly shows this. There is no reason whatever why the school should bring loss to the child.

CHAPTER IV.

FUNDAMENTALS IN PLANNING A SCHOOL.

"Thrice happy is the country child, or the one who can spend part of his young life among living things near to Nature's heart. How blessed is the little toddling thing who can lie flat in the sunshine and drink in the beauty of the 'green things growing,' who can live among other little animals—his brothers in feathers and fur—who can put his hand in that of dear Mother Nature and learn his first baby lessons without any meddlesome middleman!" (Kate Douglas Wiggin.)

In the planning of an ideal school there are certain fundamentals which must be conserved.

Good Health.—Basic to every other consideration, good health must be recognised as the essential condition and fundamental aim of all education. The value, therefore, of every contributing factor—the school building, the teacher, the studies, the programme of exercises, and the methods of instruction—is determined by the degree it promotes health of body, mind, and soul. That education in the past has been unnaturally expensive in this particular has been the shame of the school room; that it can and must reach higher fruition in the ascent of man is the responsible charge of civilization.

Good health calls for pure air, purifying sunshine, good companionship, correction of past weaknesses, adequate illumination, proper nutrition, regular habits,

correct posture, suitable studies, good tools, healthful mental stimuli, and normal procedure in work. As President Hall has so well put it, "Health is wholeness or holiness itself in its highest aspect."

The Value of Sunshine and Light.—With all a child's love for the outer world of beauty and his instinct for sunshine and light, it is no wonder that he is glad when the intermission or vacation is at hand. It is taken for granted that the growing plant must be placed in the window for full appropriation of the light; but no one thinks of the similar needs and soul-cravings of the human plant. Dr. Edward Everett Hale, in his own glorious health, never tires of speaking of the importance of the sun-bath, and, with great delight, quotes Dr. Everett in speaking of going outdoors as "coming in," and of coming indoors as "going out," because of relations to the great world of Nature and sunshine. Are our school rooms flooded with light as they should be? Is every room so situated as to receive the daily purification of direct sunshine? Is there realization that a disease germ can not live in the light of the sun? Are the school grounds ample for the gathering of as many young colts as there are children; and are the children turned loose to romp and play in the bath of the sun; or is theirs the benighted portion of the modern recess in a darkened and air-polluted room? Sunshine is a prime requisite in the culture of children. The healthiest man or woman is the one who lives most in the sunshine; and the school will always be defective until it presents more and more of the conditions of normal life. An old Italian proverb says, "Where the sun does not go the doctor goes."

The Love for Nature.—Nature is the mother of all life, and in her garden the healthiest plants are to be grown. Every child is a born naturalist. His eyes are open to the glory of the stars, the beauty of flowers, the charm of life, and his ears to the music of a world of song. His innate interests need little to awaken them into a world of activity and to link him to that which will lift him up through Nature to Nature's God; but, too often, he leaves all this to enter the formal school, where the curtains are gradually drawn over the windows of his soul. He exchanges the great fruitful, illimitable universe, where the teacher could have led him to soul expansion and the discovery of truth, for a box twelve feet by twenty-six by thirty-two, where his soul takes its shape from the limited surroundings, and he goes forth in time to wear goggles because he can not look at the light. Is there no education better than that of the box? Is it necessary that the child shall surrender all his natural instincts, so promising and satisfying, for the artificial life of the average school? Are man's best interests conserved by making him *in toto* a sitting animal, with his nose in a book and with the muscles of the neck lengthened in order that he may bend his head over a table? Shall we not rather look forward to the nobler school of the great outer world, where Nature is the basic study for the school's purposes, and brings the child's work into relation with the living interests of the soul? To know Nature, what an inestimable privilege! To love Nature, how full of inspiration and delight! To be in accord with Nature, how safe the child for all the purposes of life and of heaven!

How beautifully sings Longfellow of the illimitable field of Nature and her effective place in the education of a child:

"And Nature, the old nurse, took
The child upon her knee,
Saying, 'Here's a story-book
Thy Father has written for thee.

"'Come, wander with me,' she said,
'Into regions yet untrod;
And read what is still unread,
In the manuscript of God.'

"And he wandered away and away
With Nature, the dear old nurse,
Who sang to him, night and day,
The rhymes of the universe.

"And whenever the way seemed long,
Or his heart began to fail,
She would sing a more wonderful song,
Or tell a more marvellous tale."

Inspiration.—The greatest thing a child ever gets in the school or the adult in the college is not subject-matter, but heart contact with great personality. To be given the key of interest and to be inspired to great deeds is the *summum bonum* of all the pupil can get from the teacher. There is more education in a single hour in the imparted touch from a great soul than in years of mechanical school-room grind. It is not a question of long hours of the formal school or of what studies, but *with whom.* The student, be he man or child, who has been lifted to the heroics of inspiration and purpose, possesses the fundamentals of his education, to which everything else is accessory. Uplift,

vision, and inspiration—these are the master-keys which unlock the doors of all progress and delight.

The Play Instincts.—There is that in the heart of the child which makes work easy when it is related to play. There is little educative value in drudgery. The child has a divine right to a life of joy, to an abundance of time for play, to the doing of the work of the school in ways in accord with his own stages of life, and to express his work in exercises of living interest. Requirement, therefore, must give way to spontaneity; fatalism, to choice; drudgery, to play; execution of tasks, to individual initiative. Under the inspiration of the right teacher, and with proper suggestion, the child's own innate interests are all-sufficient for the accomplishment of work.

Individuality.—Individuality is the most precious thing among the fruits of the world. Society is rich from the fact that people are not all alike. Science, industry, art, and literature all reach their illimitable creations through this same cardinal factor, which has been fundamental in the evolution of a world of beauty and achievement. That the child learns much from others is pre-eminently true; that his greatest development is reached through giving himself for others is just as true; but both of these have their highest realization in that development of his individuality which enables him to appropriate most for his own culture, and to give that which others have not. He may gain from others, but it must be by his own imitation. He may be directed by his teachers, but it must be by suggestion. Individuality, with all it may contain, is the precious thing in his personal enrich-

ment of the world; and, therefore, its culture is of first importance. This is the height of all education; the most natural and yet the most difficult. Its conservation is the lever which must overturn the foundations of the formal school. Individuality must be king.

Normal Growth.—The healthy plant grows by that which it appropriates and makes its own. Any attempt to force it can only result in ultimate weakness. Firmness and endurance come also by self-made victory. No strong character ever yet was made by coddling. The whole realm of divine economy is built fundamentally on the principle that growth is the result of self-appropriation, and that strength is the product of struggle. The reward is "to him that overcometh." In the same way the child in the school must do his own work. There is little virtue in an exercise where the steps are all marked out for him. He must be given opportunity for choice, and to find his own way to results. He also must be an investigator and a creator. The best help is self-help. To be well helped, the child must be taught to help himself. This emphasizes the necessity for individual opportunity. No two children are exactly alike. Each must have that which is best for his own growth.

Repetition of the History of the Race.—That the child repeats the history of the race is undoubtedly true in the normal individual. This is evidenced in his natural interests, in his plays, and in that which seems to be best for his own growth and development. What, then, are the elements which should be incorporated in a scheme of consistent education?

1. *Love for Nature.*—Nature is the mother of all life, and it is in her cradle that the infant finds his growing strength and the convalescent is nourished back to life. To the untutored mind she expresses herself in visible forms, and the soul of man finds fellowship in her kindred pastimes. The child's eternal query concerning the stars of the night and the flowers of the day, his love for the beauty of meadows green and growing trees, and his delight in the presence of the running stream, the singing bird, and animal life—are akin to the richest instincts in the history of primitive man. Happy is that child who, in his contact with artificial life, still has preserved to him his early love for the beautiful in the natural world.

2. *Religion.*—The belief in immortality is instinctive in every soul. To primitive man the phenomena of Nature are the visible expressions of the infinite God. Man reaches his first realization of the existence of deity and divine goodness not through a creed, but through the manifestations of the beauty, adaptation, and manifest design in the world about him. The immanent God has been, in the history of man in his struggle from infancy unto light, the basic consciousness which has rendered acceptable the doctrines of higher faith. Because of this historic fact of the manner which God deemed best for the development of racial man, is there not abundant suggestion for the normal education of the child? Is it not a good thing for a child to reach the early development of his religious consciousness through the growing realization of the evidence of design in all the beauty, correlation, and unity of the world about him and by living

more in the presence of the immanent God? With such grounding of consciousness would not his belief be firmer because of the living "reason for the faith that is in him"? Contemplation of Nature must lead to the evidence of design, and design must presuppose a designer. Contact with superior souls, through hero worship, leads to the realization of might and goodness; and in the ground-work of might and goodness arise the loftiest ideals of a personal God. No creed ever yet spoke to the sons of men with the convincing power of the voice of Nature, "which cries aloud in all her works." Later on the doctrines of theology may well be taught, but the little child should be led to his fundamental consciousness of God by contact with the manifestations of God. There is that in the heroics of the mountains, in the majesty of the ocean surf, in the peacefulness of graceful landscape and limpid lake, in the eternal query of the stars, in the grandeur of the forests, in the exquisite beauty of the flowers, in the music of the birds, and in the adaptation and perfect unity of all life, which cradles the soul for indisputable belief in God and for the breathings of the "peace that passeth all understanding."

3. *Contact with Soil.*—"God made the country, but man made the town." Happy is he who spent his early life on the farm in contact with soil and growing things. The child who has never dug the rich ground and crumbled the nutrient soil with his hands, nor planted the seed which, under his fostering care, is to unfold into growing life, has been unfortunate indeed. To dig, to plant, and to nourish a plant as one's own child, what a necessary part in one's education! How seldom the por-

tion of direct contact with these things in the life of the city child, and yet how fundamentally necessary in the natural education of every individual, as it has ever been in the development of the race! With all the movement of life more and more away from the country toward the artificiality of the city, it becomes the mission of the school to bring back this touch with basal elements, which have ever been the rich food of the soul. The healthy child must live in the sunshine, must touch the soil and grow things of life. We must not forget the garden which was man's first Eden.

4. *Dominion over Life.*—"And God said, Let us make man in our image, after our likeness; and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth." Pets and animal companions are absolutely necessary in the education of a child. The affection existing between a boy and his faithful dog has no parallel in the whole realm of pure friendship. The fidelity of the dog, the companionship of the cat, and the musical song of the bird are all essential to the life of the normal child. The taming of the birds, the raising of little chickens, the feeding of the rabbits and squirrels, are fruitful exercises in the inculcation of gentleness, care for others, and good citizenship. The child who knows nothing of the delights of such comradeship is unfortunate indeed. There is wanting a very important part of his wholesome life. The school can well afford the presence of the singing bird, the nimble squirrel, the graceful fish, and kindred forms of life that make the school room a miniature world and open up

the rich study of animated Nature and its contribution to the dominion of man.

5. *Fellowship.*—Individuality has its safeguard in the companionship of others. Never should a child be brought up in isolation, or in the exclusive companionship of his elders. He needs playmates and schoolmates of his own age. The delights of having a chum, of belonging to a gang or team, must be vouchsafed to every child as his growing nature may seek to assert itself. Individualism and altruism are handmaids, and the more perfect the one is, the more it has to offer the other. The gang spirit, under proper direction, becomes a fruitful factor in the establishment of good order, good government, and higher patriotism. The child who is reared by himself, for fear of pollution by touch with others, may attain to a doubtful degree of purity; but he is a sickly plant, coddled in his weakness and unnatural in his imagination. The normal child needs fellowship for his own protection.

6. *Construction.*—To invent, to design, and to construct have been the promising factors in the rise of man. In expression of the dormant potentialities of the race the child seeks to repeat his ancestral history. The high educative values of activity, order, and creation establish the claim of design and construction to a major place in the exercises of the school. The child should be encouraged to make things for his plays and games and toys; instruments for his experiments, for the school, and for the home. The exercises in manual training must be related to service in play or work, to help the individual and to make happy his friends. The development of creative faculty is the highest mission

of the school. As the genius of man has always expressed itself in constructive exercises, so must the child in like ways climb to the higher levels. The education which ignores creation makes man a servile creature of imitation, dependent in his every movement upon the fancy of others.

7. *Mythland.*—In his love for story hearing, the child repeats the long and well-tried experiences of the world before the age of the alphabet and books. As primitive man reached a glorious elevation in his rise through story-telling to the heights of Athenian culture, so the child should gain his first inspiration, his first love for heroic life, from the story-teller. It is difficult to overestimate the great value of this noble exercise in the inspiration of the younger child—an exercise but poorly utilized in the schools. There is much in the great world of Nature which the child must find out for himself; there is much also which he should gain from the story-teller and later on through the lecturer. These exercises inspire to great determination, and give ofttimes the larger view which is essential in the proper accomplishment of individualistic endeavour. The story-teller is the children's friend, and their means of getting, by short-cut and in a nutshell, far-reaching glimpses into the world which others have trod. A most useless person in the school room is the teacher who tells everything; "a consummation devoutly to be wished" is the story-teller of discrimination, who can unlock the portals of the great unknown and inspire to enter, without herself gathering the rich fruits and flowers which must be the privilege of the interested child. As in the early history of the race there

was a time when the treasures of precious learning were handed down by story-telling, so in the early years of individual life is the period of greatest possibilities for gathering up, from mythland and narrative history, the elemental keys to a great world of inspiration and investigation.

8. *Language.*—From the hearing of the story-teller the child himself has stories to tell. Effective speech is always the natural resultant of definite concept. When the child has something to say the art of expression is easy. The early language of the child should have little technique. The attentive ear to what is interesting leads to its own worthy imitation. Grammar, spelling, and writing may be necessary at their proper times, but the fundamental requisite is the enkindled soul, the vivid imagination, and the definite concept—something to say before the saying, and inspiration to say the saying. Later on, the technicalities of speech and form have their places, but it is not early. To gain the most from the school, the child must be fresh for each stage of endeavour, must feel that each exercise fits the time and must be inspired to the doing. Speech is ever the product of something to say; and beauty of diction comes, not from grammatical analysis, but largely by imitation and soul expression.

9. *The Widening Horizon.*—As man in the early stages of his race made his excursions from home over areas of constantly widening circles, so the child in his culture should have the wide angle which sweeps the entire realm commanded from his point of view. At each successive stage his vision comprehends the same things as in the preceding, but farther and more mi-

nutely and more relatedly. His central position is still the same, but his experience is wider, his comprehension more extended, and his generalization more grasping. If this is true, then the child is not hurt by travel through much of the world, by contact with the elements of all Nature as they appear to him, or by rich association with those who will lift him into higher industry and invention. From the centre outward must be the inquiring look. The horizon is constantly widening. The gaze may not cover the entire circle, but it sees over the same territory as before, but farther and better.

10. *Tools.*—As with the race, so with the child, the tools for accomplishment must be proportionate in simplicity to his stages of growth. Never should that which can count for only a tool be taken for an end. Doubtless the early work of the formal school must have considerable to do with the acquisition of certain alphabets of learning and the mastery of certain working tools; but the opening up of the natural world and its needs should suggest the need of the tool for the child's use. From contact with his own immediate world of Nature and from concept formed by story-hearing, the child through imitation tells his own tale with vivid speech. He tells his story well, because he has something to say. He is finding his way to speech because there is need for that which is overflowing from within. In time he needs to communicate his thoughts to others in written form. This he can do best of all through drawing and, later on, by attempt at representation of words by means of writing. The representation of words by spelling then becomes necessary, but

here also comes into play imitation. To do his work best the child should reproduce words elsewhere seen and recognised, just as far as he can; but never in his early years should he be limited to the use of words in the spelling determined proper for adults. Given the written representation of elemental sounds, the child should be encouraged to grapple with a word and represent it as best he can, as he also represents in drawing. To limit a child, in his attempt to record his stronger concepts, to the exact spelling of the few forms with which he is familiar, is to deny him all freedom in written expression. It is far better for him to express himself with unbridled liberty, and with many inaccuracies in spelling, than to be discouraged from attempt at all. Correct spelling is not a prime test, nor essential in the language of young children. Freedom, fluency, and expression demand that the child should have opportunity to represent himself as fully and uniquely as he may. There should be no application of close laws in the determination of primary written language any more than there should be in elementary music composition. The growing strength, the self-evident need, the continued attempt, the lifting imitation, all need the natural growth which is the best safeguard of the expression of vigorous thought.

So also in drawing, the child prefers the outline figure rather than the shaded relief. The pictorial representations of ancient drawings appeal more to the infant imagination than the beauty of rounded form. Even in his love for colour the child reaches back to ancestral traits. It is said that aboriginal peoples do

not easily recognise a representation in black and white; to them the form in colour is more intelligible. So also with the child: colour appeals to him more, and he should have much of it in his early personal representation.

Thus, through the child's own expression, through written language and drawing, he is led up to the stage where interpretation of the representations of others is to him necessary. Then that which by premature presentation might have appeared to him as mechanical and abstruse, becomes a living, meaningful exercise, and he responds with vivid interest to his profitable task. Even so must all the abstractions and difficulties of technical representation be subordinated to their true sequence in a scheme of scientific education.

From Fundamentals to Accessories.—So, therefore, in a fruitful education the things which are fundamental must take precedence over the things which are purely accessory. Good health, the invigoration of sunshine, the uplift of personality, contact with Nature, love for the beautiful and true, individuality, and harmony with the laws of growth, are the prime essentials in the conservation of the school. The natural sequence is from the soul outward, utilizing those media which are best for its own growth and the exercises which are the most fruitful in soul expansion. To reverse this universal law of being and growth, by placing technicality first and Nature last, gives an arrest of development in all healthy interest and innate faculty. Technicalities have their places and times, but not in the early life of a race or an individual, where divine economy has established the necessity of unlimited vis-

ion, living things, liberty in action, and fruitful growth. The fundamentals must precede.

The accessories have their proper places. Details in penmanship, exact spelling, theoretical mathematics, the technique of grammar, the philosophy of history, mechanical drawing, trade industries and preparation, technical science, and second-hand information are all very important; but they are not fundamental, and therefore are empty husks on which to feed a young child. Even when they are introduced into the school they must be subordinated to the primeval laws which demand that contributory things should forever be accessory to the fundamental.

CHAPTER V.

THE SCHOOL PLANT.

DR. RICHARDSON, in his Hygeia, a City of Health, has given us a beautiful description of a model city, believing, with Chadwick, that a city could be constructed with any given mortality. His Hygeia is a city of 100,000 people, living in 20,000 houses, built on 4,000 acres of land, an average of 25 persons to an acre. Tall houses, overshadowing the streets and massing people at given points, are nowhere permitted, excepting in sections devoted to business. The substratum of the city is of two kinds: clay in the northern and highest part, and gravel in the southern and southeastern. The houses are all built on arches of solid masonry, and there are no underground rooms of any kind. Through these subways currents of water continually flow; and into these are the washings of the city. The streets are everywhere paved with asphalt, so that there is no dust or dirt and but little noise. The houses are built of glazed brick, impermeable to water, and the bricks are perforated transversely with a wedge-shaped opening at each end, so that the walls, while continuous in surface without, are honeycombed within, and through these openings ventilation is effected. The inner surface of the walls is left in the natural brick but finished in different colours, generally gray. There are no layers

of poisonous papers and mouldy paste; and the walls can be washed at any time. As with the brick, so also with the mortar and wood employed in building: they are rendered, as far as possible, free from moisture. Sea sand containing salt, and wood saturated with salt, are nowhere used. The chimneys are all connected with central shafts, into which the smoke is drawn, and, after passing through a gas furnace to destroy the free carbon, is discharged colourless into the open air. Every room is warmed by a fireplace which also heats the air moving freely through the honeycombed walls. The roofs are almost flat, and, covered with asphalt and barricaded with tastefully painted iron palisades, make outdoor grounds or flower gardens.

The floors of the kitchens, sleeping rooms, and bath-rooms are slightly raised in the centre and are of smooth gray tile. In the living rooms the floors are of hard wood, kept bright and clean by beeswax and turpentine. There are no carpets. In the sleeping rooms twelve hundred cubic feet of space is allowed for each sleeper; and from these rooms all unnecessary articles of furniture and clothing are excluded. The buildings being all of one story, there are no stairs. Wherever, for special reasons, there must be two stories, the bath-room is on the midway landing. The houses front both ways. Between the fronts on the interior is an open space for playground and garden. The house-drains are constantly flushed into the subways, which are ventilated through tall shafts by pneumatic engines. All the gas and water pipes enter the houses from the subways. Tobacco and spirituous liquors are banished from the city. There are no massing of makers of clothing, etc.,

into large factories, but each class of workers is accommodated with convenient quarters similar to those enjoyed by the professional classes. The laundries are placed outside of the city and are under official inspection. The sick are cared for in hospitals. The city is well provided with baths, swimming pools, playgrounds, gymnasia, libraries, lyceum and concert halls, etc. Pure water is supplied to each house, but through iron pipes. Leaden pipes are forbidden. Transportation is effected by a subway system under central avenues; so the streets are always free from dirt, noise, and the massing of people. For the few persons who die from natural causes the burial process is retained. The bodies are buried in artificially prepared carboniferous earth, in which the growing of rapid vegetation soon appropriates to itself the elements of the bodies. There being in a short time no bodies whose resting-places are to be marked, the monumental slabs are placed in a temple of historic records.

Such, in brief, are the cardinal outlines of Dr. Richardson's City of Health. Does it not contain many suggestions for the planning of an ideal school? Let us consider some of the specifications suggested also by other ideals here and there throughout the world.

An ideal school should be built in a park. At least, it should have adequate grounds, preferably not in the heart of the city. There is probably no other assemblage of animals, cared for by man, which in their culture are accorded so little ground, play and breathing space, as children. No one would think of building a college without ample surrounding grounds. Why should there be less provision for the children?

Some Suggestive Schools.

The school children of Andover, Massachusetts, are exceptionally blessed in this particular. Here is a magnificent campus of perhaps twenty acres, with extended frontage and oblong shape. The school children, about six or seven hundred in all, are accommodated in three buildings—the primary school, the grammar school, the high school—so situated that each school has approximately a third of the ground for air, light, play, and gardens. How can a city better appropriate its parks?

The Pestalozzi-Froebel House, of Berlin, is worthy of careful consideration. Here, practically in the heart of the city, is a magnificent park of four or five acres, with noble forest trees, playgrounds, gardens, animal yards, fountains, and other effective adjuncts to the school. The school is a garden home, and, from lodge gate to the attractive centre, is delightfully planned to give the children their education under circumstances in contact with Nature.

One of the suggestive schools of the world is the Abbotsholme, near Rocester, Derbyshire, England. The school buildings, surrounded by gardens and orchards, are in the middle of 133 acres of magnificent school property. The Abbotsholme stands 320 feet above sea level on the western slope of the Dove, which it overlooks. The surrounding country is remarkably fine and open, and, being nearly all wooded hillside and meadows, is like a vast park. Here are commodious sunlit buildings, shops, beautiful gardens, grounds for tennis, cricket, football, and tobogganing, a fine river for swimming—a school of Nature in the midst

of Nature. Certainly this is a private school, made self-sustaining by its own ideals and enterprise; but when, in great economic industries, and even in university training, did the state ever admit that it can not compete with private enterprise? In these days, when the smaller farms fail to bring compensating returns, why not utilize them once again for the culture of children?

In Wales there is a farm school of four thousand acres for the training of the sons of noblemen who are to become landholders. Almost every kind of industry related to the farm has its place in the work of this school. What a magnificent place this would be for the application of President Hall's seventy different trades and occupations which he describes as belonging to the education of the New England farm boys a quarter of a century ago! Indeed, it is said that President Hall's suggestions are being utilized in the operations of this training school.

The George Junior Republic, of Freeville, New York, is certainly a very interesting institution. From a summer camp the little school has grown to be a permanent community. The site is a farm, which contains an administration building; the "Republic" building, containing kitchen, restaurants, hotel, and lodging-house; the school-house, containing also banks and stores; the court-house and community offices, cottages for boys and girls, a hospital, a barn, a bath-house and laundry, carpenter and machine shops, and the garden. The high educational value of the plan is shown from the fact that the citizenship is composed of boys and girls, of ages twelve to eighteen, many of whom might

be said to have had previously a strong criminal tendency. Here, nearly two hundred in number, they are organized into a practical business community, with their own officers, laws, penalties, and participations. Each citizen must work for his living at some selected vocation, and is paid for his services in community money, from which he must support himself. Those who are the most industrious and prosperous may live at their "Hotel Waldorf," while others may find what they can pay for at the ordinary hotel, or at the lodging-houses and restaurants. Every offender is promptly dealt with by trial in the court-house, and with fine or confinement in the jail. Competent directors are at hand to render guidance and assistance as may be needed. The institution is largely supported by the earnings from the farm. Under the limited revenues certainly the plan can not be ideal; but its successful career, now for seven years, shows what can be done, even in reformation, by giving boys and girls responsibility and self-interest in work which is not entirely artificial.

A very unique school is the McDonogh Farm School, located eight miles from Baltimore. The school is situated on a fine old colonial estate containing 835 acres. Forests of nut-bearing trees for birds and squirrels and boys, meadows, clear-running brooks, fertile soil, gardens, vineyards, and orchards of fruit trees make this a rare spot. The property represents $1,500,000, and is a noble monument to John McDonogh, who fifty years ago closed his will with this pathetic expression: "I was near forgetting that I had one small request to make, one little favour to ask, and it shall be

the last. It is that it may be permitted annually to the children of the schools to plant and water a few flowers round my grave." One hundred and fifty boys, of ages ten to sixteen, are here enrolled. Their usual school studies are not neglected; but they are also trained in the exercises of the farm. Gardening, care of animals, bee-keeping, carpentry, wood-carving, drafting, broom-making, military drill, music—all offer their valuable contributions. The Rudimentary Society for boys is a very interesting part of the schooling. The rights of the individual are always to be respected. A boy's name placed near a bird's nest or a squirrel's hole protects it sacredly. This little community with its peculiar features is certainly very suggestive.

At the Casa de Piedra Ranch, in the Ojai Valley, among the mountains of southern California, may be found a school of exceptional interest, under the direction of Sherman Day Thacher, of Yale, and his capable assistants. Some thirty boys, largely from the East and preparing for the better colleges, are received. Each one, on admittance, is given a horse to be his property and for which he must care. The school is semi-military in its conduct. The boys all rise early and attend to their part of the ranch life. Then the morning is spent in hard, fruitful study. When the afternoon signal comes, every boy mounts his horse and away over the mountains in gallop and fun. The early evening has its cultured social life, until the retiring bell closes the day's activity. Notwithstanding the large amount of time given to field and mountain sports, this school has no difficulty in preparing its students for the best of Eastern colleges.

But how, says some one, shall we secure to the children this abundance of air and playground in our modern concentrated life in cities? By building the schools in central parks or on suburban farms, as will be shown further on. One of the unfortunate tendencies of American life is that man is becoming less and less a walking animal. It is said that in Switzerland, where the children spend excessively long hours in the school, the physical health is exceptionally good, and that this has its explanation in the long walks over the mountains, which the children must take in order to get to school.* It is to be regretted that this magnificent exercise is rapidly becoming a lost art in America. The child who, because of physical weakness, can not go to school unless the school is in the immediate neighbourhood, is hurt more by school-room confinement than he is benefited in his education.

The Jacob Tome Institute, at Port Deposit, Maryland, is to be one of the most promising model schools of America. Here private endowment is offering a worthy substitute for the usual system of public education. In Port Deposit there are no schools supported at public expense; there is no school board of changing constituency to limit the reaching of lofty ideals. The Institute has recently purchased a magnificent campus of one hundred acres or more, a hundred feet above the Susquehanna, the beautiful windings of which it overlooks, and there it is now proceeding to erect a million dollars' worth of buildings, with all their delightful surroundings and opportunities, for the accom-

* Educational Review, vol. xxix, p. 92.

modation of two thousand pupils. The fact that this site is on a bluff, above the town, which it overhangs, and some distance away, presents no engineering difficulties to the vigorous management of this school, which seeks the best in education.

In 1894 Mr. W. F. Wheeler, a graduate of Harvard and an educator of many years' experience, submitted to the citizens of Los Angeles, California, a plan for the centralization of all the schools of that city (population then 100,000) in a general school park. What appears at first thought perhaps impracticable resolves itself on maturer consideration into a scheme of high economic and suggestive value. Mr. Wheeler's article *

* "The recent appointment of Professor Search as Superintendent of Public Schools in Los Angeles, and the delivery of his address—An Ideal Public School System—at a reception given in his honour, September 17, 1894, at Hazard's Pavilion, also his necessary demands for more accommodations to seat two thousand or more scholars and to establish an industrial high school, all involving the necessity of issuing school bonds to a great amount, make it a fit opportunity to present to the public my long-cherished plan of a school park, to carry out, in accordance with the spirit and progress of present civilization, more successfully, practically, and economically the very same theories of teaching that Professor Search so justly advocates.

"The plan is this: There shall be established by the city a park of suitable dimensions, say not less than two hundred acres, in a healthful locality near the city limits, say the west side, in which shall be located all the public schools of the city grouped according to their different grades—primary, secondary, and so on. These school barracks should be made fire, wind, flood, and earthquake proof, of simple architecture, say Doric, only one story high, with no side windows, but lighted from above. They should be so constructed that they would connect closely with a central audience-room. Each grade of schools would be a community by

supplies a very valuable link in this chain of construction. I take pleasure in quoting largely from his contribution.

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itself and under one management. Playgrounds would be attached to each group of buildings. Broad verandas on either side of the school barracks would afford ample shelter from sun and rain. Closely adjoining each group of barracks would be the industrial barracks, which, of course, would include the industrial kitchen to provide the noon lunch for the scholars, complete in its equipment for industrial education suitable to each school department.

"All these school barracks throughout the park should be lighted, heated, ventilated, swept, dusted, and disinfected by one source of power, probably electricity applied to machinery and labor-saving devices.

"The grounds of this school park should be laid out æsthetically, yet be one grand kindergarten adapted to the needs of the schools in all the grades, with broad and extensive walks and avenues for exercise, observation, and military drill, with abundance of room for field sports for the older scholars, with arboretum, herbarium, zoölogical garden, museum, and, last but not least, a miniature ranch or garden complete in detail, systematically and scientifically conducted.

"All the labour in the industrial department and in the park should be done, as far as possible and practicable, by details of scholars under qualified instructors in outdoor work and play, especially the play, when the unconscious instruction should be omnipresent and omnipotent—a great desideratum in our public schools to-day.

"This school park should be made accessible to the whole city by a system of electric railways that would gridiron the city at suitable distances apart. This system of free transportation of scholars must be an exclusive annex of the school park and belong exclusively to the city. These school cars will be especially adapted to school work, lighted from above and not on the sides, which are closed. These cars, when they reach the barracks, can, if necessary, be turned into an annex to the school barracks as

We are now ready to put together many co-ordinating parts from these described ideals in our general specifications for the building of an ideal school.

Plans for an Ideal School Building.—The school site should be high and dry, with perfect natural drainage for its own waters, but receiving nothing from higher land. The sub-soil should be natural and not artificial, containing no organic matter. It should be in character of gravel, marl, lime, and sand ingredient, and

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recitation rooms or as the school room itself. They could be used in the evening for free night schools all over the city—in a word, they are a school room on wheels. The central power for moving the cars should be located in the park, which also would furnish the power required within the park. The conductors and motormen should be qualified by education and character to be instructors in the school room or outside of it when the schools are in session.

"All the official business of the Board of Education would be done in the park or immediately adjoining, also the boarding houses for teachers and outside instructors. Of course, the police regulations must necessarily be very strict; no use of tobacco, intoxicating liquor, profanity, obscenity, or immorality of any kind that would furnish in any way a demoralizing object-lesson to scholars or teachers, could possibly be allowed.

. . . . . .

"With regard to the expense of such a change, if the school-park system were adopted, the present school buildings could be sold. The proceeds, together with the increased values of the school park and of surrounding properties resulting from improvements made in the park, would be more than adequate for cost of park, buildings, cars, and school-railway system. Whatever the first cost, current expenses of public schools would be greatly reduced, better health of pupils would result from improved hygienic plans, and the problem of industrial public schools would be solved." (W. F. Wheeler, in Los Angeles Evening Express, October 20, 1894.)

should be tested by boring. In the language of Dr. Galton,* "A porous sub-soil not encumbered with vegetation and protected from impurities, with a good fall for drainage, not receiving or retaining the water from any higher ground, and the prevailing winds blowing over no marshy or unwholesome ground, will, as a general rule, afford the greatest amount of protection from disease of which the climate will admit." The exposure should be to the southeast.

On such a site should be the buildings, the playgrounds, and the gardens of the school.

The building itself should face the southeast,† as this arrangement carries the sun-bath to every room, and, with the changes of the day, gives the degrees of direct light and shade adapted to the usual school hours.

The foundations could not be better built than on arches of solid masonry, as proposed by Dr. Richardson.‡

The walls of the building should be of brick, impervious to moisture or absorption of organic refuse. The porosity of ordinary building materials is much greater than is generally supposed. If to a large block of sandstone two pieces of gas pipe are attached, but on opposite sides and perpendicular to the sides, and the exterior of the sandstone is coated with thick paint, so that the paint forms an air-tight box with the only openings through the gas pipes, and one pipe is connected with a supply of gas, the porosity of the stone is

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* Galton's Healthy Hospitals, p. 29.

† Kotelmann's School Hygiene, p. 36.

‡ Richardson's Hygeia, a City of Health.

sufficient to permit a very good burning flame on the other side of the block, even if the intervening thickness measures a foot or more. It is also possible to affect the flame of a candle by blowing with a small bellows through a dry brick wall.

Galton tells of an experiment made in New York by Putnam, which "showed that with every means taken to prevent porosity or cracks, the inflow through the walls amounted to nearly 5,400 cubic feet per hour in a room containing only a little over 3,000 cubic feet of air space, when the outside air was about 36° Fahr., and that inside varied 72° to 90° Fahr." *

This in itself would not be bad, because of its help to ventilation; but, when these porous walls become filled with stagnant moisture, effluvia, and other unwholesome absorptions, their use for school-houses of health becomes questionable.

The walls, therefore, might well be of glazed brick without, and of vitrified tile, of soft pleasing tint, within. All the wood-work should be of hard wood, and the floors in particular be close in grain, with no cracks, and rendered sanitary and easily cleansed by treatment with beeswax and turpentine. For rooms like those here described—i. e., of one story †—a metallic ceiling, properly painted, would answer very well. There should be no stud partitions, but wherever the same might be unavoidable they should be made of metallic lath and non-porous cement.

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* Galton's Healthy Hospitals, p. 56.

† For intermediate ceilings of buildings of more than one story special deadening must be used, or the ordinary metallic ceiling will make a noisy sounding-board.

All sharp angles in corners and edges should be avoided by using concave surfaces, in order to facilitate perfect cleaning. The jambs of windows and doors should also be rounded. The doors should be equipped with transoms and glass panels and open toward the corridors. A room so constructed would present no absorbing surfaces, and could be easily cleansed in entirety. When we reflect that, according to Hesse,* 35,000 bacteria have been found in every cubic metre of air of a school room at the end of the session; and, according to Ignatieff,† that a pupil would thus in a five hours' session inhale 44,655 germs; and that Erismann ‡ has found many kinds of micro-organisms and moulds in the school room; and that the death of certain animals has been produced* by injection of liquids saturated with condensed vapours carrying the toxic products of the school room—it seems rational that we should adopt, for the preservation of the health of the children, the same measures deemed necessary in our better hospitals. Accumulations of carbonic-acid gas are certainly to be avoided; but even these are not nearly so dangerous to certain susceptible children as other toxic products not so easily detected.

The buildings should be of one story only. There should be no basement rooms of any kind; but the superstructure should rest on solid arches of masonry, thoroughly ventilated, warmed, and kept perfectly dry. The ceilings, for a building of this character,

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* Kotelmann's School Hygiene, pp. 65–73.
† Ibid. ‡ Ibid. * Ibid.

should be, in general, fourteen feet high, or more if the size of the room will permit good acoustic properties.*

The room should open into a continuous outer corridor or colonnade, inclosed with glass during the winter time, but open during the spring, summer, and autumn.

The illumination of the school room should be from above, which is the plan decreed by Nature and to which the eye is adjusted. Through milk-white, translucent glass the light should be flooded into the room by ceiling areas sufficiently large and well-distributed to reach equally every portion of the room and without possibility of shadow. This is rendered possible by the buildings being of one story only.

The walls should be entirely without reflection, and carry a soft shade of light green.† If because of any necessity the room can not be so well flooded with light, the shade of the wall colour might well be a light buff.

The crayon boards should be of dark-green composition, or of natural slate, blue-black,‡ with fine texture and without grit. The height above the floor should be from two feet four inches in the primary rooms to

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* The height of ceiling must also be largely dependent on the character of the warming apparatus and air circulation. Architects usually estimate that a room of sixteen feet ceiling requires twice as much heat as a room of twelve feet ceiling, or even more.

† The Brickbuilder, vol. vi, p. 267.

‡ Kotelmann's School Hygiene, p. 162. Hall's Health of School Children, p. 17.

three feet in the higher rooms; the width should be four feet six inches. The chalk receiver should be two inches wide, and should not filtrate the dust into hidden receptacles, unless connected with exhaust. No crayon should be used which will create dust. The slate should be cleansed with a wet sponge. Kotelmann prefers crayon of a pale yellow,* which would be very good for the dark-green surface. The teacher's crayon board should be balanced by weights, and rise and fall in order to preserve the line of writing at shoulder level, as in many excellent schools of Continental Europe, particularly the new Cantonal Normal School of Lausanne, Switzerland. There should be no side windows in the room for illuminating purposes, but on the side opening into the corridor or colonnade there should be windows through which the children can look out on the school gardens. There might also be overhead openings on opposite sides of the room for natural ventilation in very warm weather, but these should be closed and screened at other times. In rooms requiring direct sunlight for projection, there should certainly be window openings or other apertures on the side of proper exposure.

By this plan of illumination it will be seen that the light is entirely from overhead, which is Nature's plan. There is no direct sunlight, and yet the room is flooded with pure white light, well distributed and nearly free from confiicting shadows.

Through views commanding the gardens the child still looks out on the natural world, but these corridor

* Kotelmann's School Hygiene, p. 168.

windows are shaded, and are overcome by the superior flood of light from above.

The ventilation of the room should be effected through walls that breathe. The walls in Richardson's Hygeia are honeycombed by the bricks, impermeable to water, being perforated transversely with a wedge-shaped opening at each end into which no mortar is inserted, and with all openings communicating into each other. The outer layer of brick is glazed and presents an unbroken surface. The air admitted into this honeycomb should be taken from higher levels and not from the ground, as in all ordinary methods. The warming of the building should be by tempering the honeycombed air by electric heaters in the walls.* The air, admitted through all walls at heights above the head level, should be removed by equally well-distributed openings in the floor by mechanical exhaust. In summer time the air should be cooled by mechanical process, giving the negative of our present winter necessities.

The corridors also should be mechanically warmed and ventilated during the time of their winter inclosure. Each room should have its adjacent cloak-room, thoroughly warmed and subject to exhaust. In like manner the closet and lavatory system should be by accommodations in near-at-hand parts of the building. The

* The wonderful development of electricity and the ease of its distribution by wires render perfectly feasible this means of uniform distribution of warmth in buildings. The marvellous discoveries in liquid air and its application are very suggestive for expedients in the reversal in summer of our present methods of tempering the winter air.

usual method of herding children into closets is objectionable. Children are entitled to some privacy as well as their elders, and besides such places should be for their use at any desired time and not at the general recess, when the inclination to play and to avoid publicity tempts them to neglect and to irregularity in habits. The lavatories and closets should be finished in white marble with white enamelled upper walls, and should be flooded with direct sunshine and thoroughly ventilated. They should open into the cloak-rooms. The lavatories should contain drinking water, distilled, free from lead, and supplied at proper temperature. The cloak-rooms should be separated for boys and girls and be equipped with individual lockers.

The building should have its studios, laboratories, and workshops grouped, adapted, and equipped for their respective purposes; its teachers' rooms; its play room and open court; gymnasium and drill hall; libraries; auditorium; art corridor; lunch rooms; plant and animal room. Without, it should have its gardens, playgrounds, and model park. As far as possible the school premises should constitute a miniature world.

The equipment of each room should be adapted to its specific function. Why should all rooms be equipped alike? Certainly it should not be because of the poverty of inventive mind. In any given school room the furniture should not be such as to demand uniformity of posture. If a child must have much of his school indoors, he should be permitted to stand up, or sit down, or to move, as Nature prompts him. This question of furnishings will be discussed at greater length further on.

The building and its appurtenances should be such as to appeal to the artistic sense. The architecture should be simple but effective. Within, restful colouring, pictures of art, artistic decorations and curios, aquaria, and graceful flowers; without, the climbing vine, the fountain and its living life, here and there an heroic statue. These, with the graceful hills, the native forests, the growing fields, the limpid streams, and miniature lake, and their abounding life, and all the surroundings of the park, should make the school a place of beauty and imparted ideals.

"Yes," remarks Mr. Taxpayer, "but how about getting so much ground for the school? It seems to me your park calls for the expenditure of a good deal of money."

Perhaps it may, but we have no difficulty in getting sufficient acreage for our stock farms, and that too often very close to our cities. However, further on it will be shown that the expense would be really not as great as it may seem.

Even if the full plan of the larger school park can not be realized, there are many ways of reaching these ideals on a smaller scale right in the heart of our cities.

Many delightful schools of this kind are already in operation. Reference has already been made to the schools of Andover, Mass. Madame Claverie's beautiful Casa de Rosas at Los Angeles, Cal., is a delightful example of what may be done in this way. Here, perhaps, was the most artistic school ever designed in America. The building was largely one story, and in architecture an adaptation of the Moorish, which has expressed itself so well in southern California. Within, the rooms were

chaste in soft colouring, in graceful outlines, adapted furnishings and suggestive decorations. The building faced both outward and inward, a delightful inner court of beautiful outlines, fountain, and semi-tropical vegetation being formed by the surrounding buildings. Without the building were the children's gardens and a canopied playground, with climbing vines almost covering the outer walls, while the boundaries of the school premises were walks of beautiful pepper-trees, hedges of roses, and orange orchards. The whole school, in all its correlating parts and effective unity, was the dream of a poet, the ideal of an educator, and the realization of years of sacrifice and toil. The name Casa de Rosas is no more beautiful and effective than was this delightful school in glorious ideals and inspiration in the days of its suggestive career. That its earnest creator should pay the penalty that marks the lives of those who live to present ideals by which evolution reaches its more perfect realization, is the repeated story, many times told in the history of an advancing world. Happy were the children who breathed the delightful air of this suggestive school, and many will be the schools that have caught inspiration from the Casa de Rosas.

In larger and more magnificent ways the great Stanford University is the most suggestive style of architecture, perhaps, in the world, for adaptation to the purposes of an ideal school. It is itself an adaptation of the mission architecture of southern California, and monumentalizes these glorious ideals which should be the pride of all America. The missions themselves were great industrial schools for the elevation of the children

of Nature, and suggest much for utilization in a school that should be equally broad in its purposes. Here, at Stanford, in the centre, is a great oblong quadrangle, 586 feet long and 246 feet wide, containing three and a quarter acres, paved with asphalt and ornamented with fountains and clumps of effective vegetation. All around this inner quadrangle or *patio* is a continuous colonnade of noble arches and rich colouring, the colonnade making a continuous walk of nearly half a mile. Without this colonnade, and opening on it, are the groupings of class rooms, laboratories, libraries, lecture rooms, administration offices, etc., all one story in height. The roofing is of rich red tile, giving an effective but artistic capping to this most unique school structure in all the world. Between the several groupings of departmental rooms, but through continuous arches of the beautiful colonnade, are the entrances, foot walks, and driveways to the open *patio*.

Without the first quadrangle, but widely separated from it, is now building a second quadrangle of architecture entirely inclosing the first; and at the ends of the second quadrangle are designed other groupings of longitudinal buildings. The original plan provides for indefinite expansion, without crowding or distortion. Surrounding this ideal series of structures is the great Stanford farm, with here and there other buildings of greater height, for museum, gymnasia, chapel, mechanic arts hall, dormitories, and dwellings. Stanford University is the practical realization of great but new ideals in school architecture, which with much profit may be adapted for the specific purposes of other educational institutions.

Gathering together these suggestions of Dr. Richardson's City of Health, the schools of Andover, the Pestalozzi-Froebel House, Abbotsholme, the George Junior Republic, the McDonogh Farm School, the Jacob Tome Institute, the Casa de Rosas, and the realized great Stanford University, and incorporating the fundamental specifications already presented, let us see now if we can not construct a school plant of greater efficiency in promoting the educational interests of the child.

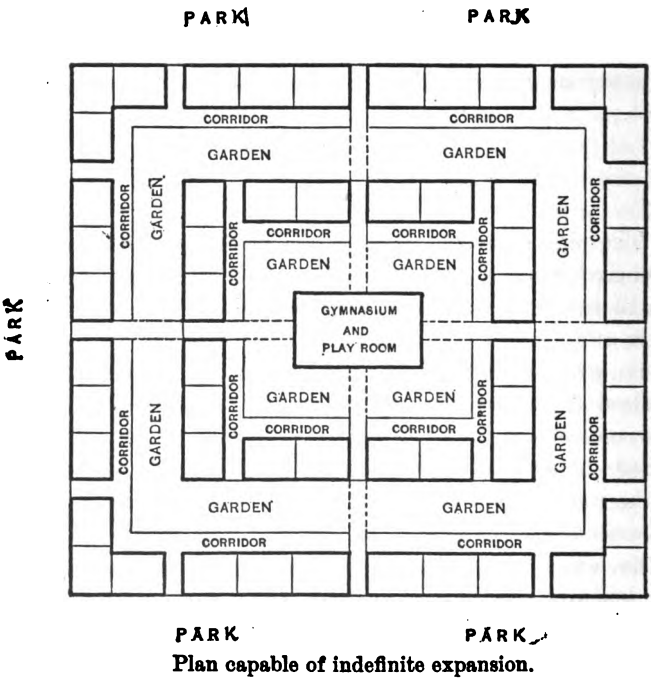
General Deductions.

The plan comprehends a school system of five thousand children. By reference to a subsequent chapter, it will be understood that the plan of organization is to do away with the mechanical grading of schools into twelve grades, which never have corresponded to their original intention, and to substitute a grouping into four departments, based largely on the great nascent periods of growth. These departments may be known as the play school, the elementary school, the intermediate school, and the high school or gymnasium. Preferably, each department is to be accommodated in its own building. If the school is perfect, it will better hold its constituency in health and in culture. This would result in there being as many, or almost as many, in the high school as in the lower schools. To whatever extent it is not perfect, reduction must be made in each succeeding stage of work. If the city contains more than 5,000 children—say 20,000—the number of buildings can be quadrupled. If the number is a fraction of

5,000, the quadrangles, in number or in size, can be increased or diminished proportionately.

DESIGN FOR A PLAY SCHOOL AND ALSO FOR A PRIMARY SCHOOL.

56 School Rooms—24 Children per Room—Total, 1,344 Children.



Plan capable of indefinite expansion.

A building of this design, either for the kindergarten or play school, or for the elementary (or alphabetic) school, should be located in the centre of a section of the park, the section containing not less than

ten acres. The building would cover an area 372 feet by 380 feet. If the courts between the quadrangles could be greater, it would be all the better. The outer wall of each quadrangle is solid and gives a definite boundary to the more valuable school property. This outer wall is of glazed brick of cream colour, and is made artistic by architectural relief and a covering of vines. For the clinging of the vines the glazed walls in such sections should be trellised.

As will be seen, the plan of architecture comprehends an inner central building, surrounded by a garden court not less than forty feet wide. Around this inner court is the first school quadrangle, with continuous corridor or colonnade facing inward. Separated by another court, also forty feet wide or more, is the second quadrangle of buildings, with corridor or colonnade also facing inward.

The school rooms are approximately 28 by 32 feet, are illuminated from overhead, and otherwise finished, ventilated, and warmed as previously described in this chapter. The school rooms have their convenient wardrobes and lavatories, not here represented, but in locations elsewhere suggested.

The school rooms look out, through interior windows and doors, on the broad corridor, and command views of the inner gardens and vine-covered walls beyond. During the winter time these corridors are inclosed in glass and make the winter conservatories; but in the milder months they are open and constitute continuous colonnades.

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The gardens are not less than forty feet wide, have their broad mid-walks with fountains and aquaria at

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each corner, and their beds for culture assigned to each class and pupil. Here and there are statuary and houses for pet animals. In the gardens also should be abundant places for and invitations to the birds to build their nests. Within the central *patio* or garden court is the large stormy-day play room, which, in the buildings designed for older pupils, is the gymnasium, but here is also used, as occasions may require, for an auditorium and exhibition hall. The administration offices might be in this central building.

The passages from building to building are through covered pavilions which are inclosed in winter time. There are also exits at other points, as indicated in the design.

This design omits details and is not submitted in hard-and-fast lines, but merely as suggestion for adaptation as conditions may deem advisable.

The diagonal facing of the building permits the sunshine to reach all the gardens and every corridor. The rooms, illuminated from above, are flooded with light almost as constant and abundant as that of the outer world.

It will be remembered that the rooms are all of one story and are built on well-ventilated and warmed archways of solid masonry. There are no basement rooms and no stairways.

Without the building is the park, of sloping sward, forest and fruit trees, running water, pavilions, playgrounds, gardens, etc. There are no "keep-off-the-grass" signs.

Design for Grammar School or High School.

The quadrangle architecture is also designed for a school of older pupils, with certain modifications. The inner building should contain gymnasiums, instead of play room, with baths and swimming pools in direct connection. The inner building also should contain an ever-ready auditorium, smaller lecture rooms, music room, and the administration offices.

The inner quadrangle might face outward and toward the exterior quadrangle. This would transform the inner court into a gymnasium court, where the prescribed physical exercises could be conducted in the open air. As this inner court would then be surrounded by solid walls, basket-ball and other kindred games could here be immediately under the eye of the physical director; although still better fields for these amusements would be provided in the school park. The second court might well be wider than in the play school, preferably eighty feet.

The central building also should be crowned with an observatory for astronomical and meteorological purposes, and a horticultural hall might be provided, although this latter is not especially advisable, as the inner gardens and the field gardens in the summer and the winter corridors present abundant opportunity for plant culture, excepting of larger tropical forms.

The park without should contain larger gardens and playgrounds for team work and free exercises. It should also have its well-directed fields for applied sciences and constructive exercises, expressing themselves in experimental agriculture, electric stations, hydraulics, kite-

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flying, weather bureaus, house construction, bridge-building, etc.

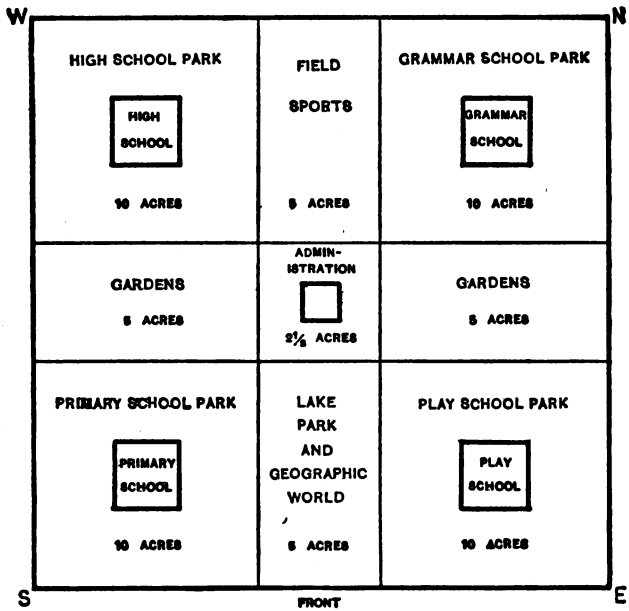
"I admit," says Dr. Economist, "the great beauty and desirability of a school so located and constructed. It would return the school to its legitimate place in the field of Nature. It would bless the children with soil in which to dig and plant, with animated life to study, an abundance of pure air, sunlight, and playground, and a hundred other desirable things denied in the barren life of most schools. Undoubtedly the children would enjoy better health under this and other provisions which, I infer, you propose to further present; but that which perplexes me is *how you are going to give such a school to the children in our thickly populated cities.*"

In the original planning of a city the first thing to be thought of should be the children and their proper culture. Adequate school premises should be provided; and tributary to these should be all the other industries of life, which certainly have no higher purpose in man's ambition than to confer wealth on the rising generation. Why should there not be in every city a broad reservation like the Executive Park in the city of Washington, or like the Boston Common, or the City Park in Albany, devoted to the culture of children? Or what other better way is there of utilizing our present city parks for the higher purposes of man? Such appropriation would only add to the beauty of the parks themselves, and would make them none the less the pride and enjoyment of the people.

But the founders of cities are not always so far-seeing or economic in their planning. We must reconstruct the city as it is. We might utilize our central parks;

GENERAL PLAN FOR A SCHOOL COMMUNITY.

5,000 pupils.



Suggestion for grouping of buildings on a general school park. Plan subject to modification or indefinite expansion. Each building an adaptation of design presented on page 96, according to characteristic purposes of the play school, the primary school, the grammar school, and the high school. The administration building could contain offices, conference rooms, normal department, general library, lecture and music hall, heating and lighting plant, master clock, etc. Transportation by city ownership of street railways. For argument and specifications see Chapters IV, V, VI, and VII.

or, better still, we could choose for our school plant desirable property without the city but in close proximity. This would not have been possible a few years since; but in this day of electric-car service there are no obstacles in the way of its effective operation. The city, by municipal ownership, by reservation in franchise or by contract, could well afford to provide this most necessary part in a desirable education. If the endowed public-school system provided by private enterprise at the Jacob Tome Institute can thus care for, as their plans contemplate, two thousand pupils by the building of an electric railway, certainly the State or city should also be abundantly able to provide for its own.

With the school so far removed from the homes, how would the children get their noonday meal? Would it be by a school lunch?

Yes, but a much better lunch than that furnished in most schools. One of the great problems in the culture of children is the food question. How shall the children receive the nutriment demanded by the stages of their growth and the nature of their work? The school dinner is a perfectly legitimate part of the child's culture. The school should also issue suggestions to the home concerning the other meals and related subjects.

"It seems to me," remarks Mr. Taxpayer, "that the plan of buildings you present, with their parks of from ten to one hundred acres or more, their extended buildings and artistic surroundings, would cost a great deal of money. *How would the cost of such a school plant compare with that of our present schools?*"

The increased cost would not be so much as it seems. The abandonment of valuable school property in the heart of the city, and generally in locations of great desirability, would of itself go far toward the purchase of the school parks and the erection of buildings. Indeed, in many instances, it would more than cover the entire expenditure. The cost of an ordinary building is greatly increased by its lofty superstructure, and sometimes there is much expended in the external finish of a building which is not at all desirable for school purposes. The transportation difficulty, to whatever extent it presents itself, could be effected by municipal ownership or by ordinance just as well as ordinary transportation can be reduced in fare from five to three cents. The cost for teachers, increased by reduction of schools to twenty-four children, which is eminently desirable, and by the employment of better teachers, would be greater. But, after all, what are we living for if not for our children? Why does the wage-earner toil day after day, and the capitalist store up his money, if it is not to confer wealth upon the children? And what wealth is there that can for a moment be compared with glorious health, and the developing power which comes from a well-trained mind?

CHAPTER VI.

THE SCOPE OF THE SCHOOL.

A PLANT, located, built, and furnished as has been described, would equip our school to meet the full mission demanded by modern life.

Every one of the traditional studies would be enriched by an opportunity never before offered by the school. The losses by reversion from the rural life to that of the city would be partly overcome. The farm, with its many lessons from Nature and its many trades and occupations possible, would be rich in instructive exercises. The gardens would bring back the forgotten touch with the soil, and the delights of animal life would awaken new human interest.

It would now be possible to group pupils more according to interests and abilities. Then, for larger illustration and general culture, opportunities for use of lantern projection or for gatherings in the assembly hall would be immediately at hand. A hundred children, a thousand children of approximately the same age, would be at a moment's command for a music exercise. Scattered in their cottage quarters in the great quadrangles, the pupils might all be at individual work with space and group separation far greater than

in the usual school; but yet orderly massing of large numbers for the lecture, the concert and the general exercise would be always at command. How often the superintendent has wished to meet the children of his entire city, grade by grade, but has always been denied because of distances!

Here also would be opportunity for gymnasium drill under favourable conditions, and for return to the old-time recess denied the child of the modern school. The complete bath house at Brookline, Mass., by this centralization now becomes a desirable adjunct easily realized. But still greater in possibility would be the comprehensive school library which must be a cardinal factor in the ideal school.

The traditional school has opened its doors at nine o'clock in the morning and closed them at four o'clock in the afternoon. In the cities the high-school session has been even shorter. In many instances the closing of the school has been hastened to catch certain cars; and in a moment the great building with its valuable equipment is silent and empty. The pupils have been required to do much preparation of work at home, frequently at great disadvantage and under unfavourable circumstances.

These limited hours of school accessibility were all very well for the days of the rural school when the constituency was small and scattered; but the conditions and demands of modern life are very different. Because the schools have been largely closed, other agencies have been rendered necessary. The institutional church and the various societies of community improvement have been called upon to do a work which

properly belongs to the school. The Young Men's Christian Association, the Young Men's Christian Union, the Young Women's Christian Association, the guilds and sodalities, the boys' clubs and the women's clubs, have been performing a valuable work which lies directly in the province of the public school. The large and prosperous commercial schools in our cities establish also the fact that the school has not been meeting its entire responsibility.* Wherever in the community there is a sufficient number of persons desiring educational facilities, right then and there is the mission of the school, no matter what the age or the attainment of the student may be. This opens up a wide field of usefulness for the evening school. Almost every city, under proper organization, can gather as many pupils in the evening classes as in the higher classes of the day school. With the generous equipment now the possession of the average school, this can be done at comparatively small cost; and under the plan proposed in our centralized plant how much better it could be done!

Not only the evening classes for investigation and study are the legitimate work of the public schools, but the school should also be the centre for all kinds of literary endeavour. The literary clubs could well be furnished their places of meeting in close proximity to the helpful library; and they should be directed in their endeavours. Classes in the afternoons for older persons—in literature, history, science, physical culture,

* The writer has official information to show that a single correspondence school in the United States pays annually over $80,000 in postage, to which might be added a similar amount for return communications.

art, cooking, and sewing—would be a very valuable part of the work. The directors and heads of departments and of the great library could suggest and perhaps direct an important work which would be much appreciated.

Then there is the field of the instructive lecture. Practical experiment has fully demonstrated that popular science and instruction, presented in attractive ways, will reach people who ordinarily never come under the influence of the lecture. The whole field of the Chautauqua movement and of university extension is full of suggestion for the development of this important work in bringing value to the community. The school must comprehend the community.

An annual music festival, made gloriously possible by the centralization of schools, art exhibits, the presentation of classic music by great artists, the illustrated lecture of travel and science, the opportunity of the children to meet and to hear great men who would be attracted to such a school—all of these would be direct possibilities.

Then there is the vacation school for children desiring to escape from the heat of the city and to be engaged in profitable and congenial employment. This would maintain the care of the gardens during the summer. The work of Johnson at Andover, in particular, is very suggestive for what could be done on this great farm school.

The very fact of centralization of equipment and the gathering of experts, as will be later described, would open up a field of high-school extension which should be occupied. To whatever extent deserving young people, who can not go away for their education,

need opportunity for post-graduate work, they should have it. Unquestionably the school can furnish such instruction cheaper at home than these young people can get it by going away. Whenever in a school of this character this movement grows in constituency sufficiently to take the place of the college it will be the legitimate province of the public school to perform that function. This will be discussed later on.

The school, then, in what it offers should comprehend the community. Whatever it can do to extend educational opportunity should be freely given. The doors should be, practically, always open; and whoever knocks at the temple of learning should find a most cordial welcome.

Re-enforcing the work of the superintendent and teachers, should stand the well-organized Education Society. The magnificent work which has been done at Brookline, Mass., and which has been extending itself effectively in Philadelphia, Pa., Brooklyn, N. Y., Newark, N. J., Princeton, N. J., Pittsburg, Pa., New Haven, Conn., Boston, Mass., New York, N. Y., Newton, Mass., Northampton, Mass., New Bedford, Mass., Barre, Mass., Belmont, Mass., Yonkers, N. Y., Denver, Colo., and other cities, is too important not to be utilized in support of the larger usefulness of the school. Superintendent Dutton has done much to make his Brookline schools famous; but the crowning masterpiece of his useful work has been this great demonstration of how the forces of the community may be correlated for effective advance work.

This, then, outlines the larger province of the school, to which the people would respond with great apprecia-

tion. There are several reasons why the people have sometimes been slow in furnishing adequate support to the schools of the past. First, there has been little opportunity to appreciate the magnitude of the city school work, because of the scattered condition of the many plants. Second, the work itself has been of limited efficiency. The parent has been annoyed too often by the doctrine that the home is responsible for the teacher's work. Third, the school has not extended very generous help to a large constituency of persons who have desired earnest educational assistance outside the usual hours and grades and curriculum of the formal school. The school has been too limited in its scope of usefulness. Fourth, the school-house has not been, to any considerable extent, the meeting place of the people. The minister owes his greater influence among his people over that wielded by the superintendent, and also his opportunity to be better understood, largely to the fact that he has so much greater opportunity to come in contact with the people, to gather them into a responsive, co-operating working body. Every gathering of the people at the school-house during the usual school hours, or for an evening lecture or entertainment, is an effective movement in the interests of better schools. It pays to bring the people into contact with school influences, be it only in gathering them together for something of value or enjoyment in the school hall. The suggestion of the school's interests by the school's surroundings, the democratic feeling of being an integral part of the work itself, and the exchange of appreciative remarks with others in the same school gathering, all foster a condition of personal pride and co-operation

that is very helpful in the making of an advance school. Indeed, there is no way of carrying forward progressive work to any goodly degree of leadership, excepting as the forces of the community are thus co-ordinated.

The people are always proud of a good school, the purposes of which they can see and realize. The centralization of all the schools in a general school park would be an effective object-lesson which, re-enforced by the greater usefulness of the school outside older lines, would bring the school interests to the minds and hearts of the people. Better equipment would be supplied because its application would be seen. Better teachers would be furnished because the adults as well as the children would gain from their instruction. Better official representation of the people would be elected because the people themselves met in more frequent and intelligent conferences concerning the welfare of the school. The forces of the community must be correlated; the school must be more comprehensive; the school plant must be enriched by greater centralization; the doors must be open to "whosoever will"; the people must meet more frequently to uphold the hands of their educational leaders. The results of such intelligent co-operation in a democracy can be only one thing: The people will be proud of *their* schools and will carry forward the work as has never yet been done in the history of the world.

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CHAPTER VII.

THE COURSE OF STUDY.

"Of all subjects calculated to call forth a pupil's own efforts, those which give him something to do have the preference over those which merely give him something to say." (Dr. Andrew Bell.)

WHATEVER may be the general thought concerning the feasibility of centralizing all the schools of the city in a general park, or in several parks, it will be evident that the discussion is now gradually approaching details of great value in the conduct of the school. The interest of teachers, therefore, will be especially directed to the question of how to get rid of the difficulties in the course of study.

Periods of Growth.—Probably the most promising contribution of child-study to the building of the better school is coming from the discovery that the growth of the child is not one of uninterrupted progression. Great stages or periods of growth, widely differing from each other in character, are characteristic of the physical development from the cradle to manhood. Attendant upon these stages are certain nascent periods of budding forth, which determine studies best calculated

for mind culture and the times of easiest accomplishment.*

The first five years are characterized, in particular, by being the period of the most rapid brain growth. The brain gains nearly all its growth in the first seven years, and practically reaches its full maturity in size † at the age of eight or nine. The very fact that this is the period when the energies of life are largely centred in the storage of brain growth for the demands of later years, renders it highly important that the early life should be a life of freedom, with little to arrest the maturity of growth, which conditions so much to come. It is said that the child born with a large head is more likely to live. So, also, the child who has the opportunity in his first seven or eight years for unarrested brain growth is safest for all the nerve strain that is to follow. This period, therefore, must be characterized by opportunity for rapid brain growth, nourishing food, abundance of sleep, plenty of free movement and play, and little demand upon the higher and finer brain areas, which do not develop so soon as the larger ones.

The study of the heights of school children leads to some very serious reflections. Says Burk: ‡

"Between six and seven years of age the American child measures about 44 or 45 inches. This is an increase of 24 to 25 inches for the first six years of life.

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* E. B. Bryan's Nascent Periods. Pedagogical Seminary, October, 1900.

† Donaldson's Growth of the Brain, p. 104.

‡ Burk's From Fundamental to Accessory in the Development of the Nervous System. Pedagogical Seminary, vol. vi, pp. 5–64.

. . . At twelve years of age American boys are on the average about 55 inches in height, an increase of 10 or 11 inches for the six preceding years. . . . Until ten to twelve years there is no material difference in the heights of the sexes; but, during these two years, varying with localities, the girls grow faster than the boys, and for two or three years following are actually taller. During the fourteenth or fifteenth year the rate materially slackens, and though the girls grow slowly for two or three years longer, they have practically completed their growth in height, generally at the age of fifteen. The period of accelerated growth in height in the case of boys begins during the period of twelve to fourteen, as a rule. They overtake the girls usually in the fifteenth year, and by the end of the sixteenth year or later their period of accelerated rate ends. . . . At the eleventh year or thereabouts there is no material difference in the heights of the two sexes."

Dr. Bowditch found that at twelve and a half years, girls, as a rule, begin to grow faster than boys, and during the fourteenth year are about one inch taller than boys of the same age. At fourteen and a half years boys again become taller and continue to grow until nineteen. Girls have nearly completed their growth at fourteen and a half.

By these references it will be noted that the most rapid growth of boys is between fourteen and sixteen, and of girls somewhat earlier. The wide variations in growth will be referred to later on. These periods or stages in average growth will be readily apparent from a study of the tables on pages 114 and 115:

*Dr. Bowditch's Table, showing Average Heights and Weights of Boston School Children of American Parentage. Heights taken without Shoes; Weight in Ordinary Dress.**

Age Last Birthday.	Boys.		Girls.	
	Inches.	Pounds.	Inches.	Pounds.
5 years	41.74	41.20	41.47	39.82
6 "	44.10	45.14	43.66	43.81
7 "	46.21	49.47	45.94	48.02
8 "	48.16	54.43	48.07	52.93
9 "	50.09	59.97	49.61	57.52
10 "	52.21	66.62	51.78	64.09
11 "	54.01	72.39	53.79	70.26
12 "	55.78	79.82	57.16	81.35
13 "	58.17	88.26	58.75	91.18
14 "	61.08	99.28	60.32	100.32
15 "	62.96	110.84	61.39	108.42
16 "	65.58	123.67	61.72	112.97
17 "	66.29	128.72	61 99	115.84
18 "	66.76	132.71	62.01	115.88

Annual Average Increases in Height and Weight. (*Warner, after Bowditch.*) †

Age Last Birthday.	Boys.		Girls.	
	Inches.	Pounds.	Inches.	Pounds.
5 years	....	....	....	....
6 "	2.36	3.94	2.19	3.99
7 "	2.11	4.33	2.28	4.21
8 "	1.95	4.96	2.13	4.91
9 "	1.93	5.54	1.54	4.59
10 "	2.12	6.65	2.17	6.57
11 "	1.80	5.77	2.01	6.17
12 "	1.77	7.43	3.37	11.09
13 "	2.39	8.44	1.59	9.83
14 "	2.91	11.02	1.57	9.14
15 "	1.88	11.56	1.07	8.10
16 "	2.62	12.83	.33	4.55
17 "	.71	5.05	.27	2.87
18 "	.47	3.99	.02	.04

* Warner's Study of Children, p. 31. † Ibid., p. 32.

*Average Weight of the Brain of Children in Ounces, Avoirdupois. (After Dr. Boyd, as observed by him in 2,030 Cases, London.)**

Age.	Males.	Females.
Newborn	11.67	10.00
Under 3 months	17.42	15.94
From 3 to 6 months	21.30	19.76
From 6 to 12 months	27.40	25.70
From 1 to 2 years	33.25	29.80
From 2 to 4 years	38.70	34.97
From 4 to 6 years	40.23	40.11
From 7 to 14 years	45.96	40.78
From 14 to 20 years	48.54	43.94

Increase in Brain Weight with Age in Grammes. Encephalon weighed entire with Pia. (Vierordt.)†

Age.	Males.		Females.	
	No. of cases.	Brain.	Brain.	No. of cases.
0 months	36	381	384	38
1 year	17	945	872	11
2 years	27	1,025	961	28
3 "	19	1,108	1,040	23
4 "	19	1,330	1,139	13
5 "	16	1,263	1,221	19
6 "	10	1,359	1,265	10
7 "	14	1,348	1,296	8
8 "	4	1,377	1,150	9
9 "	3	1,425	1,243	1
10 "	8	1,408	1,284	4
11 "	7	1,360	1,238	1
12 "	5	1,416	1,245	2
13 "	8	1,487	1,256	3
14 "	12	1,289	1,345	5
15 "	3	1,490	1,238	8
16 "	7	1,435	1,273	15
17 "	15	1,409	1,237	18
18 "	18	1,421	1,325	21
19 "	21	1,397	1,234	15
20 "	14	1,445	1,228	33
21 "	29	1,412	1,320	31
22 "	26	1,348	1,283	16
23 "	22	1,397	1,278	26
24 "	30	1,424	1,249	33
25 "	25	1,431	1,224	33

* Warner's Study of Children, p. 33.

† Donaldson's Growth of the Brain, p. 104.

A GENERAL COURSE

Subject to Individual

Approximate ages.	Stages of growth.	Classification of school.	Characteristic purpose.
23, 24, 25 ..	Specialization.	University.	Professional training.
21, 22	Transitional.	The world.	Choice of vocation.
18, 19, 20 ..	Early manhood and womanhood.	College.	General culture.
15, 16, 17 ..	Early adolescence.	Gymnasium or high school.	Exercise and application.
14 *.....	Reconstruction.		Accommodation.
11, 12, 13 ..	Full childhood.	Intermediate or all-round school.	General survey and skill.
8, 9, 10	Middle childhood.	Elementary or alphabetic school.	Acquisition of tools.
5, 6, 7	Rapid brain growth.	Play school.	Freedom.

* A reading of the context is essential to an understanding

OF STUDY.

Variations.

Sociologistic principle.	Studies or media.
Adaptation to distinctive mission.	Life work.
Finding mission.	Business, society, travel, investigation.
Altruism.	Sciences, Languages, Humanities, Belles-lettres, Mathematics, Economics, Industries, Gymnastics. Music, Art.
Convictions.	Science, Grammar, Latin, Greek, French and German, Literature, History, Algebra, Geometry, Design, Creation, Gymnastics, Play, Music, Art.
.....	Relaxation in school. * Summer in country, in camp, or on seashore. Winter in semi-tropical regions.
Helpfulness.	Nature, Geography, Language, German and French, Drawing, History, Literature, Arithmetic, Geometry, Mechanics, Invention, Industries, Gymnastics, Play, Music.
Self-control.	Nature, Drawing, Language, French, Writing, Reading, Historical Narrative, Literary Gems, Form and Numbers. Construction, Play, Music.
Beauty of harmony.	Nature, Mother Tongue, Picture Reading, Drawing, Myth, Construction. Play, Song.

of the distinctive bearings of this variable course of study.

A plan of school work should be determined largely by the characteristic phenomena of fundamental nascent periods of groups and of individuals; and to that extent it may contain a general time element; that is, it may base its proper work upon exercises appropriate to the various stages of growth; but no given portion of time should ever have assigned to it the accomplishment of a definite amount of work. School work should be full of opportunities for omissions, for short-cuts, and for changes in character of exercise. The best studies are not those which require identical procedure.

Recognising, therefore, the value of years as approximately representative of certain stages of growth, with constant variation for adaptation to sex and individuals, the classification of schools on pages 116 and 117 is offered, with illustrations to follow in subsequent chapters, to take the place of the graded course of study as generally constituted.

The Play School.

The play school is for children of years approximately five, six, and seven. The characteristics of this stage of growth are rapid development in the size of the brain, the need of proper nutrition, and, at more frequent intervals (possibly five meals per day), little exacting work, an abundance of free movement, plenty of play in sunshine and pure air, and twelve hours per day for sleep. It is also the time for observation, for imitation and for story-hearing. The child comes in contact with the beauty of the law as unconsciously presented to him in his relations to others. His act

may spoil the harmony of perfect concord, may be the one blot on the perfect picture, may bring unhappiness to others. The beauty of the perfect law, not its majesty, therefore, appeals to him; and he gradually places his life in harmony with the welfare of others and thus finds himself an integral contributor toward good government.

The exercises of the play school are *Nature study,* bringing the child into contact with life and associating him with its care and culture; *story-hearing* as he sits at the feet of the story-teller and drinks in the wealth of myth and representative story; *mother tongue,* through his own telling of stories heard, things observed and personal experiences, through contribution to the children's group, and by imitation of the teacher story-teller; *picture-reading,* his only reading from the printed page; *construction,* embodying the survival of the fittest exercises of the kindergarten and reaching out after larger and higher forms; *games,* full of life and romp and spontaneity; *art or drawing,* the child's own representation of stories heard, things seen or to be constructed; and *song,* not through character representation, but pure song itself.

Would you have no reading or writing before the age of eight years?

I would have neither of these exercises in the play school during this stage of rapid brain growth. Reading, as has already been said, is an exercise of passive attention, full of abstraction and difficulty, which largely disappear when it is reserved for a time when strength and concept unite to make it easy, and its results are very meagre. Besides, at this tender age, the

bending of the child over a book and the confinement of vision to the close-at-hand page before he is able to handle himself properly, are both to be avoided. There comes a time in the later development of the child when there seems to be a budding forth of literary ability which makes learning to read easy and quick of accomplishment. Writing and other fine and exact work are also objectionable at this period, and should be deferred until the smaller areas of the brain begin to be developed. The young child should deal more with wholes and larger movements.

Is it ever advisable that a child of this age should begin piano practice? Is it not claimed that the skilled musician is the one who begins technical drill of the fingers in early childhood?

Most emphatically there should be no piano practice at this age. The brain must reach, during this period, practically its full maturity in size, and, therefore, must have the whole strength of its energies expended in growth. Attention to exercises of the finer muscles leads to arrest of brain growth and to many nervous diseases which afflict the child for life. It is cruel to confine a child of this age to an exercise like piano drill, when all the activities of the body and mind call for freedom.

How will you occupy the child's time? Admitting that reading and writing have been largely unprofitable studies for young children, what can be offered as their substitute in the school?

The consideration of this question in the past has been one of great difficulty because of the point which has just been raised; but we are now coming to its solu-

tion. The scheme of Nature study which has been worked out so admirably by Dr. Hodge * at Clark University, and in his writings, and which is now finding its way with such enriching results into the schools of Worcester, Mass., and elsewhere, opens up an unlimited field of opportunity. This question of Nature study will be treated more fully in our discussion of the methods of the school. Then there is the great and fruitful revelation of the story-teller, who is the person above all others to be prized in the education of the young—how enormously this field can be developed! The kindergarten has never experienced difficulty in filling the day, and the development of its higher exercises and their application in construction will contribute a great factor. Then the play exercises which Superintendent Johnson has been working out so admirably in his school at Andover are full of suggestion for immediate utilization. There is an abundance of material with which to fill even the longest day.

"Would not the child lose greatly," says some ambitious mother, "by thus omitting all technical training until he is eight years old?"

It is the gradation of the school and not the loss of time by the child which makes this matter serious. If the child is given opportunity, he will readily recover his place with children of his own age, and beyond that his interest is keener and his progress more substantial.

Says Dr. G. W. Fitz: †

"Experience has shown over and over again that the

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* Dr. C. F. Hodge. Nature Study and Life.

† Popular Science Monthly, vol. lv, p. 429.

child who begins to read at eight or even ten years of age is in no wise handicapped in his later intellectual progress. He has the inestimable advantage of intense interest roused by his growing ability to unlock the secrets of books and papers after the fashion of his elders. . . . Writing is taught before the child has acquired the art of fine co-ordination, and the effort demanded in the use of the pen 'leads to a degree of nervous exhaustion unapproached by any other school work.' . . . Much of the aversion to arithmetical problems found later is undoubtedly due to this disheartening primary work. Here, again, the child who begins arithmetic at eight or ten years of age finds himself able to take it up quickly and has the liking for it that easy mastery always gives . . . Nature work, on the other hand, offers wonderfully interesting and valuable material for awakening the intellectual activities of childhood; and while its material for study and description is unlimited, its demand upon the child may be perfectly adapted to his power of observation. We must remember that physical activity is the supreme factor in the development of a child."

What should be the hours of this play school? Would you have single or double sessions?

Under the form of organization recommended that is really a very immaterial consideration. By the present plan of schools, which confines the young child and expends his time in abstract, technical, and exacting exercise, the time should never be more than half a day. Indeed, two hours is all a child of this age should be confined for a day. But it must be remembered that our ideal school contemplates a school of great

freedom and naturalness. It has its gardens and park for summer and its flower corridors for winter; its ample play room for winter and extended playgrounds for summer. Much even of the constructive exercises can be out of doors, while within the child still lives in a room of perfect illumination. The story-telling of the teacher lends itself as well to the group under the trees as to that in the house. All the movements of the children take on all the naturalness of the home. Under such circumstances it matters not whether the school is one of single session or double session; but with our ideal park and gardens and attractive buildings for the gathering of the children, it would naturally be a place where they would spend a good part of the day. It is not so much a question of the child as it is of the teacher; but in our play school the work is not so exacting, and it is not so necessary that the same teacher should carry all the work of the school.

Supposing that your ideal plant could not be obtained, what do you think should be the discipline of the primary school as at present organized?

There is no reason why the discipline should be rigid even in that case. The child has a divine right to a life of activity. If he wants to stand up or to sit down, the privilege should be his. If he wishes to leave the room because of physical necessity, that is his business and not the teacher's. In his movements to and from the class he must be natural. I was very much interested in visiting a school in Denver, to hear the enterprising teacher say she had discovered the natural way for a young child to move was not to walk, but to scamper. Here was a school

where, when the group around the desk was ready to return to their seats, the teacher gave a signal, and away they all scampered and another class came running forward in the same way. The children had been accustomed to this exercise and not in the least did it seem to disturb the happy working discipline of the room. But even if it did, little would be lost by breaking up the painful passivity and monotony of most primary schools.

How many children to the teacher would be contemplated in this ideal school?

Twenty-four. This is far too many in the present school where the teacher is to attempt the impossible task of bringing full activity to every child in the room in reading and kindred abstractions; but the teacher in our play school can handle that number very well, for she becomes their leader and director rather than the hearer of lessons.

Did you ever see a school where Nature was thus made the basic study?

Miss Dennis's walking school at Chautauqua, N. Y., conducted with great success during several summers in the eighties, was a fine illustration of what could be done in this way. The Upsala School at Worcester, Mass., and Madame Claverie's transitional school in her beautiful Casa de Rosas, at Los Angeles, are both notable examples full of suggestion. Reference to this work will again be made, with fuller description, in the discussion of studies.

Would this plan do away with the kindergarten?

By no means. The kindergarten has been the leaven that has been transforming all elementary education.

Froebel is the only man who ever made a complete plan of education out of whole cloth. The work which has been begun so well in the infant-room has been reaching its way upward and is enriching the entire educational fabric. Our play school is the expanded kindergarten; and as it deals with children of older age it must take on higher character. Exercises in colour and form, modelling, paper-folding and cutting, stick-laying, visualizing, larger mat and basket weaving, representative games, etc., are all full of great possibilities. Certainly the kindergarten must abandon its finer work, and this it is now doing. For building purposes nothing is of higher value than several hundred building blocks the size of bricks, or, for exact building, 2 inches by 4 inches by 8 inches. The larger portion should be of full size, a great many of half bricks, and some half bricks should be cut diagonally through the oblong sides, to make triangular forms for gabled roofs. With a quantity of blocks of these sizes in the school or the home there is no end to the magnificent structures and transformations which the children will make in expression of their genius. Such an outfit, in a play room in the writer's own home, has been the gathering place and endless enjoyment of the children of a whole neighbourhood. Then there is the building of veritable houses under the teacher's direction, of mills on the water stream, and other creations of the opportunity-given child. It should not be forgotten, however, that the child at this age delights in cruder forms. To him a shaped board with a string is a boat; a very simple structure becomes a sled; and there is more pleasure in a rude pencil sketch than in the finished picture in the

book. The complicated toy and the detailed representation belong to a later age.

Your play school provides for children of ages five, six, and seven, or approximately so. Would you have no schooling for children below the age of five?

I look with great reluctance on any necessity which separates the mother and the child during the first four or five years of the child's life, and with still greater reluctance to any procedure which shuts the young child up in a house. If our homes were ideal, I would say the home garden, where the mother trains her child, is a sacred place not to be given up for anything the school can offer; but if the home conditions are not ideal, if the child is to be passed over to the attendant, or if he is to live in the atmosphere of the thousand vexations which some way characterize so much of every-day life, or if he is to be shut up in quarters where the conditions are less hygienic than the school, then I am sure the infant school is preferable. However, the growing interest which mothers are taking in practical child-study, as evidenced in the formation of mothers' clubs, mothers' councils, etc., is prophetic of the day when the average mother will be better prepared for, and more delighted in, the culture of her own children. The mother owes that to her child which no teacher can ever offer. As Beecher has said, "Every mother is a priestess ordained of God."

Mr. Taxpayer here interposes an objection:

Your school seems to require that the number of pupils to the teacher should be reduced to twenty-four. Would not this cost a great deal of money?

This reduction is made even now in our kindergar-

tens. It is also done in nearly all of our high schools and in many of our higher grammar grades. The number of pupils to the class is very much less than that in certain branches. It is, therefore, only a question of justice to all, of carrying the same policy into other schools. Besides, it is not a question of how much does it cost, but of how much more can the child get out of the school. As I have said before, what are we living for, if not for our children?

"You think, then," remarks some interested educator, "that the plan of deferring a child's formal training until he is approximately eight years of age is fully practicable, and that there will be sufficient subject-matter to occupy his time in the play school?"

It is perfectly practicable. The time of a child always has been fully occupied by the school, and probably always will be. It is absolutely essential that the child should have opportunity for free growth at this time. Says G. T. W. Patrick: * "The period between the ages of five and ten years is an important one in the child life. It is the time when the "let-alone" plan of education is of most value, for the reason that nearly all our educational devices beyond the kindergarten are more or less attempts to make men and women out of children. If the child at this age must be put into the harness of an educational system, his course of study will not be impoverished by the omissions of reading and writing. To teach him to speak and to listen, to observe and to remember, to know something of the world around him, and instinctively

* Popular Science Monthly, vol. lv, p. 392.

to do the right thing, will furnish more than enough material for the most ambitious elementary curriculum."

The Elementary or Alphabetic School.

I am ready to admit there must come a time in the life of the child when he should become acquainted with the alphabets of learning, and acquire skill in the handling of certain tools on which his later advancement is more or less conditioned. The best time for this is during the ages eight, nine, and ten. The brain has now approximately completed its growth; the period is one of fairly constant increase in height and weight; the smaller brain areas are being developed; the body takes on a grace not possible before; the memory is not charged with the conflicting impressions of later years; language becomes easy; there is a growing tendency toward details, analyses, and invention; a care for property rights and a regard for the happiness of others have been engendered; and the whole child is rapidly passing from the realm of pure percept to a growth where the concept is becoming more characteristic. It is a time when the child is rapidly adjusting himself to environment; and, therefore, it may be characterized as the period of nascent self-control.

In this elementary or alphabetic school the child should still have Nature as the great basic study of the entire period. Drawing is still taught as a means of expression. His language, through imitation and from the more abounding concept, now seeks by its own nature a written representation. By recognition

of the form of words, taught on the crayon board and by selection from placard or crayon-board vocabularies which grow with the addition of new words, the child by imitation begins to be a writer of words. The writing of language leads directly to its reading; and thus the child gets his knowledge of the alphabets of literary composition at a time needed by the processes of Nature. To him reading is now intelligible from the start; and his stronger mind short-cuts the longer and monotonous processes which in the earlier years are attended with so much worthless consumption of time.

The story-teller still has her place in the school; and historical narrative adds to myth its noble contribution from the past. During this time of receptive memory beautiful gems from literature are made the children's own. The period is also characterized as the one particularly favourable for pure language study; hence, a foreign tongue, preferably French, should be begun early in this period, but entirely by the mother-tongue method. From contact with Nature in the play school the child has already got his unconscious knowledge of numbers, and, in his own way, can make some surprising calculations. It is now well that he should be drilled in the fundamental processes and acquire, through use, a knowledge of the alphabets and basic relations of numbers. Construction takes on a higher form. The simpler representations will not now answer. The boy's boat must be the best boat; the girl's doll must be the best dressed. It is a time of the windmill, the water-wheel, the sail-boat, the kite, the top, the mechanical toy, the pattern-making, the well-plotted garden, the play-house, store vending, and juve-

nile soldiers' drill. The child must have his tools and work room, and his pets to care for. He prizes drill in sloyd, sewing, and modelling; but all of his exercises must be for some practical purpose. It is a time also when the voice needs careful attention, that children may sing softly and in perfect tune. They should have opportunity to hear beautiful music, and, occasionally, the stirring brass band. If the future violinist or pianist is to arise to any great distinction, it must be by training of the finer muscles during this favourable period. But with all, the child must have abundant time and abundant opportunity for free play, and this free play should have fully half of his waking hours. He needs also eleven hours of sleep (best hours eight to six), and well-selected, nutritious food.

Why is so much time demanded for play? Will this not interfere very materially with the serious work of the school in getting the child ready for the responsibilities of life?

It must ever be remembered that play is the child's divine right. The man owes his comparatively greater longevity over the other animals to the fact that his period of childhood, of free play, is longer; and in proportion as we encroach on this fundamental necessity in healthy growth, we limit the tenure, the usefulness, and the enjoyment of adult life. If we do not allow the child adequate time for play, there is no life worth the getting ready to live.

What are the reasons for placing French in this elementary school? If it is based on the fact that this is the natural time for language, why not give the more attention to English?

I would not for a moment lessen the attention which should be given to pure English, except to say that the best English training a child at this age can get is by imitation from the exemplar teacher, the models in polite literature, and in the clear comprehension of things to say. But there is a limit to which English, unaided by other language, can rise. The study of a foreign tongue brings into play many nicer exercises in the interpretation of one tongue into terms of another, many discriminations in word forms, synonymous meanings and particular choices, and also unconsciously much of grammatical values not so easily recognisable in one's own familiar tongue. It is because the processes of thought involved are so much richer that a foreign tongue at this age is particularly desirable as a help in English thinking. Besides, the period is the natural one for language study; and if one is ever to get a foreign language at all, he might as well get it while it is easy. "I doubt," said Dr. Edward Everett Hale,* "if I was twelve years old when my father gave me a scrap in French, from the Journal des Débats, about excavations in Assyria, and asked me to translate it for his newspaper."

There is no particular objection to making German the introductory modern language, if local circumstances render that language more advisable. A child should gain a speaking knowledge, by the mother-tongue method, of both French and German before he reaches the high school. It is perhaps best he should

* Hale's How I was Educated.

take up one first. French is much the easier in learning, and therefore is placed first.

Where shall we get teachers qualified for this instruction in the lower school? Shall all our teachers be required to be proficient in French and German?

Not necessarily so. French or German in schools below the high school should be taught entirely by the mother-tongue method, and this calls for teachers who are trained to the mother tongue. It is not necessary that such a teacher should be with the children excepting at certain hours during the week. Then everything should take on the atmosphere of the French or German lands, be it in the school room or in the fields.

Would you have no French or German in the play school?

There is no objection to some simple exercises of this character in childish spirit, if the circumstances demand. Many kindergartners have introduced something of the foreign tongues in connection with the children's lunch. In this way the children are taught quite effectively, and to their great delight, many phrases appropriate to their exercises. Wherever this can be done in connection with the play exercises it certainly has no objections and may present many decided gains.

Would there be no formal gymnastics in this school?

Not for children of ages eight, nine, and ten, excepting in correction of physical malformations. The best physical training a child of this age can have is nutritious food, an abundance of free play, great freedom in the school room, and eleven hours of refreshing sleep. If you can not have these essential

elements and conditions, then you must offer formal gymnastics.

When would you teach the child his multiplication table?

I do not know that I would teach it to him at all; I would probably let him learn it. And yet it is highly important the child should have careful drill in the alphabets of numbers during this period. Instead of making him commit meaningless tables of numbers, I would place the common tables in large characters on great charts on the walls so that the child could get his table help at any time by an immediate glance at the table form. An abundance of calculations soon makes the child familiar with the fundamental products; and after a time he will himself short-cut the processes by mastering the missing links. Or then, when the table has become his tool, the teacher may make requirement if necessary.

It is interesting to note that Samuel Pepys, the eminent English accountant, who was secretary of the navy under Charles II (all historians rely on his diary for data concerning the reign of this king), and was selected to make reply to the criticisms on the naval department—which was done with such accuracy of statement, mathematical detail, and effective results that he received the thanks of the king and the naval department—graduated from Cambridge in 1653, but did not learn the multiplication table until 1662.*

Concerning covering the wall with placards and charts, bearing in large characters tables and other im-

* See Samuel Pepys' Diary.

portant data to be fixed on the memory, the schools have much to learn from the psychology of advertising as exemplified in street-car cards and on bulletin boards.

The Intermediate School.

The years eleven, twelve, and thirteen in boys, and eleven and twelve in girls, are marked by great acceleration of growth in height and weight. Full boyhood is reached ordinarily at the end of the thirteenth year, and full girlhood ordinarily at the end of the twelfth year. This is the pre-pubescent stage just before great organic changes set in, and may be called the period of realized childhood. The child now begins some generalization and is ready for a general survey of his environment and for exercises of further skill in his adjustment. The development of finer muscles has given him a quickness and grace of body not earlier possible; and his mental co-ordinations are correspondingly rapid. It is a time of spontaneous politeness and general helpfulness. He does not care to play alone, but has a passion for flocking, for choosing sides, and for the gang.

His overabounding nature may now make trouble unless properly directed; but, on the other hand, any utilization of his gang spirit leads easily to great helpfulness in self-government and to the recognition of community relations. It is an excellent time to abridge many of the usual processes of the school and to gain in a short time, under proper opportunity, a comprehensive preparation for the work of the high school. The school may now take on a miniature representation of life and may anticipate to good advantage every

study that is to follow. Because of this, it may be called the School of General Survey and Universal Adjustment. If there is any one person in the world who in a short time can quickly comprehend and also adjust himself to almost any emergency of universal environment, that person is the boy or girl of this age. This is the time for the climbing of trees, for learning to swim and to skate, for writing letters to the opposite sex, for baseball, for excursions, for running away from school, and for stealing watermelons—not to be bad, but just for the fun of the thing. The child now needs an abundance of food, freedom from pressure, plenty to do during school hours, attention to cleanliness, opportunity to help somebody else, but not under requirement, opportunity for social games and play, and ten hours of refreshing sleep. Up to the end of this period co-education has its self-evident advantages; during the following four years it is a debatable question.

Because of all this, the study of Nature in the census of birds, the traits and habits of fishes and mammals, the colonization of bees and ants, the culture of frogs and toads, the destruction of pestiferous insects, and the fostering of plant life for animal purposes, is an exceedingly interesting occupation at this period, so long as it involves something for the child to do in the domestication of animals and in the culture of the higher types of plant life. Before this time, the child, from his general contact with the world and from the illustrated lecture, has got an elementary knowledge that the world is round and one of many worlds, and of the general size and location of the con-

tinents and oceans. He has also gained many useful ideas from his experience and observation in the school park, from attendance on illustrated lectures and elsewhere. He is now ready for a detailed study of the geography of the world; and for this the two or three years of this school are ample time. Language is still easily acquired. The forms of written communications used in letter-writing and business transactions should receive special attention; and abundant exercise will doubtless be given to record-keeping, to graphic descriptions and to story-telling. The modern languages should be continued. If French has been studied in the preceding period, German may now be substituted, or, *preferably, added;* but in this the mother-tongue method should still be used, with reading and writing largely incidental. Drawing is continued as a form of language expression, but begins to take on design for constructive purposes.

The history of the United States and of England, and the leading current events and their related history of the world at large, now make fruitful reading and topics for discussion. Good books and selected masterpieces should direct and foster a worthy literary taste. Business arithmetic and practical geometry fit into their proper places. Mechanics, inventive exercises, and industrial training, in practical forms, are full of profitable enjoyment. The child should now enter the gymnasium for a half hour of regular daily drill, class and individual. The entire school should be organized for play, as at Andover; but nothing should be done to crowd out the free spontaneous play which, however, is the natural outgrowth of the Andover spirit. It is

at this period that the most beautiful music in all the world of song is possible, the voices of both boys and girls now reaching a purity and freshness that have no parallels in the realm of music. Because of the attendant beauty, grace, co-operative spirit, brightness and effective results, boys and girls at this period are most selected for exhibition purposes. Nothing that follows can compare with the pleasing life of this age. It is the glory of realized boyhood and girlhood in all their charm, vigour, and beauty.

Would you have no advanced problems in arithmetic for disciplinary exercises?

The fundamental processes in arithmetic and in actual business are really very few; but they are capable of such an infinite application in problems such as one would meet in life, that they possess all the disciplinary possibilities that may be desired. Pupils, in rapid exercises from blackboard tables, may learn all the simpler square and cube combinations and their resolution into roots, so that the fundamental elements involved may thus be readily recognized; but square root and cube root and kindred difficulties should be left until the high-school period, when, in connection with algebra, geometry, and physics, they may be better presented. The course of arithmetic prepared by Superintendent Dutton for his schools in Brookline is remarkable not only in what it gives, but in what it omits. What there is, should be done well.

I see no penmanship assigned for this period. Where does penmanship come in? Should it be vertical or slant writing?

There is little penmanship taught, but plenty of

good writing required. In the elementary-school period, assigned for the acquisition of skill in the mastery of working tools, writing should be taught. The system is the vertical, with every letter formed in the simplest possible manner and as an approximation of print. The hand should be large and the lines heavy enough to be read without tiring the eye. All blackboard writing should be in a very large and heavy hand. In the preceding three years—of ages eight, nine, and ten—pupils will acquire great legibility and fair rapidity in script writing; and with the end of that period all regular special instruction in writing may be discontinued. The intermediate-school period in its various exercises calls for a great deal of expression in writing. Good penmanship should always be required; but it need not be taught excepting as an occasional exercise. Vertical writing, once acquired, will perpetuate its own legibility.

"I now understand," says some one, "that you would condense the technical work, which in most schools requires eight years, and in Massachusetts nine years, into these two periods of only six years, and in case of the girls possibly five years. Do you think this can be done; and, if so, how?"

I am sure it can be done. In the first place, I am relying on better health to accomplish in a short time what ordinary meagre health accomplishes with difficulty in a long time. Then, again, all the work of the play school abounds in self-suggested anticipations of later work, and leads to the concepts which make all work easy when presented at the proper time. There is nothing whatever gained by the attempt to force a nascent period. At the proper time the child will

come to his budding strength for the accomplishment of a given kind of elementary work; and then is the time to accomplish much in little. The attempt to anticipate, by substituting monotonous, unproductive drudgery, is apt to inoculate the child against all healthy interest when he is naturally qualified. It is never quantity which educates, but good healthy normal exercise at proper tension. Then, there is much in the ordinary course of study which can be eliminated, as has been suggested.

Yes, I am quite sure that with an entire reconstruction of our correlations and methods of work, all the technical work which should be done below the high school can be done in these five or six years, and even then allow for a good deal of absence demanded by general circumstances. The fact is, there is more education outside of the school than the average schoolman is ready to admit. There are educational factors which the school has never yet paralleled, but which contribute very much to the total sum of a child's education.

But how will you ever get these pupils together again if some of the girls omit a year here and other pupils a number of months there?

I do not say that I would have all girls omit a year at the end of this period; but I would make it possible for some of them to do so, at least much of the work. As far as the difficulty of getting the pupils together is concerned, I am not disturbed about that. I am only too glad to see the early coming of the time when pupils are not "together" in their work. I am willing to short-circuit the curriculum for a great many pupils in the school.

Might not some work in Latin be begun very profitably in this school?

Most certainly, if it is desired. It is purely a question of the proper amount of language study at this time; and that is largely an individual matter. As far as age is concerned, it is a favourable time for beginning Latin. Says Dr. Edward Everett Hale:* "I was put on my Latin paradigms when I was six years old and learned them remarkably well. We limped through a Latin version of Robinson Crusoe when I was eight years old." Margaret Fuller is also said to have commenced her Latin at six years of age.†

Are there not a good many subjects in this proposed course of study—quite as many, indeed, as required in the ordinary graded school?

It may appear so, because all the elements which the child touches are here mentioned so that the comprehensive scope of the plan may be seen. It should be noted, however, that these subjects are capable of a great deal of correlation. For instance, mechanics, invention, industries, and much of drawing and geometry really constitute one general subject. But beyond that, this school, as will be indicated later, works on a flexible programme of longer periods and recognises that the child will probably live to do to-morrow what he can not accomplish to-day. This, however, will be discussed later under the subject of illustrative methods.

Is it to be understood that you would have children work by longer periods than is usually the case? Are

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* Hale's How I was Educated.

† Julia Ward Howe's Life of Margaret Fuller.

not all the recent studies in fatigue overwhelming in their argument for still shorter periods of work and for frequent changes of exercises?

The school here presented is a very different affair. I have long been convinced that the breaking up of the child's time into so many fragments, with such kaleidoscopic changes, tends only to dissipation of energy and defective mental image. It is always better for a teacher to continue until she has got something, always observing the rule, never to pass the point of good, healthy, vigorous, and interested attention. Besides, the test, in a school built along the lines suggested by play instincts, is, how does a child play? A child never plays with fragmentary division of time. His is always the longer period. The moment he is pressed for frequent change he begins to tire of his sport. It is only when the child is taken to the school, the world's fair, or the circus, that he comes home tired. The fact is, there is a great difference between a school of dead and passive exercises and one built fundamentally on the doctrine of interest.

There probably never has been a study of fatigue where the elements of interest and spontaneity entered into consideration. Every attempt to measure fatigue, so far as I know, has been entirely through the media of comparatively dead and passive exercises.

In advancing an argument for longer periods of work I wish to be understood. I do not fail to recognise fatigue in our reconstruction of the school; but all fatigue is not bad. We need normal fatigue to complete the cycle which leads to the recuperation of energy, the reconstruction of exhausted brain cells; and

certainly there is advantage in proper change of exercise. What I am contending against is the fragmentary division of time and the dissipation of a child's energy. The flexible programme, doing to-day what can be done well, and the longer period of work, wherein interest is the controlling spirit in the doing of work, are things greatly to be desired in our elementary education. As a child plays, so may we safely plan his normal work. This will all be involved in the discussion of methods.

The Second Birth.

We now come to the most serious problem in all the realm of pedagogy. Thus far we have been dealing with the child and have attempted to trace his gradual development from infancy up to the period of full boyhood and full girlhood. Now comes a reorganization of the child's entire being, a reorganization based in the physical, but extending upward through the intellectual, and affecting largely the moral. A little later on, the child has reached early manhood or early womanhood; but just now he is neither child nor adult. The entire being is passing through an organic reconstruction which demands the most careful consideration. "The reproductive organs increase in size, the larynx enlarges, the vocal cords become elongated, the volume of the heart is increased. In the male the shoulders broaden, the muscles harden, and the beard begins to grow; in the female the pelvis increases in size, the bust develops, menstruation begins, and so on. Probably equally important changes occur in the brain; for the shape of the head changes and the new intellectual and emotional activities of this period must be accom-

panied by the functioning of cerebral centres that have lain dormant before. This is, moreover, a period of specially rapid growth in both sexes. Key, who reports observations made upon 15,000 boys and 3,000 girls in Swedish schools, found that the boys showed a rapid increase in height and weight from the fourteenth to the sixteenth years. A similar period of rapid growth appeared in the girls at a somewhat earlier age." *

Dr. Burnham, from whom the above quotation is made and whose studies have given an immense impetus to a better knowledge of the characteristics of adolescence, further says:

"The psychological changes at puberty are no less remarkable. There is a great influx of new sensations. The brain, aroused by these new stimuli, increases its activity. The psychic concomitant of this increased cerebral activity is manifested in a variety of ways. The adolescent mind is filled with hopes, dreams, tempestuous passions, and new ideas. Social and ethical impulses become dominant; egotism often gives place to altruism. Political or religious zeal sometimes becomes the mainspring of action. The reasoning powers come into use. At a somewhat later period philosophic speculation frequently becomes almost a passion; and philosophic and religious doubts are often common. The whole period of adolescence is often one of mental storm and stress; and not infrequently the cerebral overstrain results in insanity."

It is in failure to consider these great fundamental

* W. H. Burnham's The Study of Adolescence. Pedagogical Seminary, vol. i, pp. 174–195.

reconstructions of organism, which call for the concentrated energies of the entire being, that educational methods have been most devoid of conscience. At the very time when there has been the most need for conservation, the school system too often presses the child unmercifully. The changes attending this physical growth and reconstruction may be more manifest in girls, but they are just as energy-consuming in boys. At this time there must be relaxation, change in direction, freedom from pressure, and opportunity.

"Every modification of the sexual organs and every excitement will have its effect on the nervous system, and through it on the whole organism. Nervous centres, voluntary muscles, involuntary muscles, heart and blood-vessels, glands—everything is affected." (Dr. Colin A. Scott.)

Dr. Christopher * has said that if a child were growing fast and studying hard while at the same time it should be developing the reproductive organs, it would be almost impossible to furnish sufficient food to carry on all these processes, and something would be sure to suffer.

Dr. Clouston also very pointedly remarks: "American physicians tell us that there are some schools in Boston that turn out young ladies so highly educated that every particle of spare fat is consumed by the brain cells that subserve the functions of cognition and memory."

"Puberty," as one writer has said, "is the grand court of appeal by which weak children are weeded out

* Child Study Monthly, vol. iv, p. 74.

and only those who have sufficient vitality for life's battle renew their strength and continue their development. . . . Foster's Medical Dictionary puts the average period of adolescence at between the ages of fourteen and twenty-five for boys and twelve and twenty-one for girls. . . . Clouston makes puberty the initial period in the development of the function of reproduction, and adolescence the whole period of twelve years from first evolution up to the full perfection of reproductive energy." (Burnham.)*

Any teacher, whose vision is not clouded by course of study requirement and the demand for a mechanical gradation, in contact with girls approximately at the age of thirteen and boys at fourteen, can not but have observed the difficulty with which children at this age usually perform school work. The girl's manifest weakness in climbing stairs and the boy's clumsiness in walking across the floor are both indicative of inability to co-ordinate, because life energies are centred largely in growth. This year of greatest stress, wherever it happens to come—and it varies with the differentiation in children—must be attended with a modification of school plans that will make conservation of these fundamental demands of growth a matter of prime importance. I do not say that such a child should have no schooling; but I do insist that many children ruin all their chances for future health by close application to school work during this critical time. Because of this, not to make such a plan uniform for all children, but to present opportunity for frequent need and to emphasize the

* Pedagogical Seminary, vol. i, p. 174.

importance of some provision, I have placed in our general course of study a year of relaxed school life, to be spent, if possible, amid circumstances of proper mental activity, but of radical removal from school tension and rivalry. This year on our chart has been placed approximately at fourteen; but it should come early or late whenever the condition of the child's health demands. It is a good thing for the schoolman to realize that there is much education for a child outside of the school; and the school plans should be so built as to permit a child's absence at any time, without loss above compensation. The school which has difficulty in placing children received from other schools, or who have been out of school for a time, is not simply out of joint with other schools, but is itself out of joint with Nature.

The Gymnasium or High School.

The pupil is now still in the early stages of adolescence; but, it is to be hoped, the year of greatest stress has passed. If not, it should have consideration at any time it appears. The period characteristic of the ages fifteen, sixteen, and seventeen is, as a rule, one of remarkable tendency. As the outgrowth of physiological and psychological changes the youth's entire attitude toward life has been changed. There has been a breaking up of old anchorages, a reticence toward parents, and frequently a desire to get away from home. An unsettled condition of mind is also attended by growing convictions, which seek expression sometimes in harsh and very inconsistent ways. The mind is filled with ambitious dreaming, and strenuous desire to do

something right off. The safety of the youth demands that there must be opportunity for this pent-up, overflowing, and red-hot energy to express itself. If there is not such opportunity it may vent itself in immoral and lascivious dreaming. If it is true, as our most eminent physiologist asserts,* that many boys spend nine tenths of their time in thinking about matters pertaining to sex, it is highly important that the time of such pupils should be filled with inhibitive exercises that will prevent this over-consumption of time by sex-consciousness. As President Hall has so well said: "Quite apart, therefore, from its intrinsic value, education should serve the purpose of preoccupation, and should divert attention from an element of our nature, the premature or excessive development of which dwarfs every part of soul and body." The youth must have opportunity to express his overflow energy in physical exercises not altogether work, to do something. He should not be given chance to spend his time in indolence, in secluded sentimental reading, and in riotous imagination. His need is for action.

The question whether the sexes should be coeducated during this period of maximum sex-consciousness is one much discussed. If the major thoughts of many boys dwell insistently on sex functions, as asserted in the authority given, and a similar consciousness, even in degree, exists with girls, are there losses or gains in coeducation? Notwithstanding the judgment formed by most persons on the mere statement of the question in this light, I am inclined to think there are gains.

* Pedagogical Seminary, vol. i, p. 207.

After a long, active experience which has placed me in charge of one hundred thousand boys and girls of all ages, with some inclination to study individual characteristics, I am led to the opinion, particularly as far as boys are concerned, that the separated child is the unfortunate one, that his lascivious imagination arises from being alone, and that there is purifying corrective in the presence of the opposite sex. It is far better to have a boy's conceptions of girlhood coloured by contact with the nobler average girl of the school than by his riotous imagination or some exceptional suggestion. If judged from this point of view, coeducation has its tower of great strength.

However, the question is a broader one than this. Are the functions of the education of the two sexes the same? There are physiological reasons why the girl surpasses the boy in school ability at the beginning of this period, because her development is earlier. Dr. W. O. Krohn * has attempted to show, basing his inferences on the tables of Vierordt,† that the brain of the girl at twelve or thirteen, and of the boy at fourteen, diminishes in weight because the blood and vital energies at this period of stress are largely diverted to the development of other parts of the body, and that the girl's recovery one or two years earlier is the reason she is able to surpass the less-favoured boy at this time. This, however, is purely speculative, for the number of cases (Vierordt's table) at these particular ages is too limited for the basing of a scientific conclusion. It is very possible that a boy at this critical age can not

* Child Study Monthly, vol. i, p. 36. † Chapter VI, p. 115.

divert energy from bodily growth to mental operations, while the girl having passed it earlier to a greater extent can, and therein lies her perhaps greater danger from working under requirements of work uniform also for boys. Dr. Edward H. Clarke remarks: "It was not Latin, French, German, mathematics, or philosophy that undermined her nerves. She lost her health simply because she undertook to do her work in a boy's way and not in a girl's way." Clouston also very pointedly adds: "Why should we spoil a good mother by making an ordinary grammarian?"

If this phase of the problem has no other solution than that presented in the practices of the school of uniformity, then we must render verdict that coeducation of the sexes in the high-school period is a failure. But the plans and methods of work, the discussion of which we are now entering, are built fundamentally on the recognition of existing individual differences and needs, and, therefore, provide a place where neither the girl nor boy will suffer in a scheme of coeducation as applied to exercises, mental and moral.

If, however, a school is so happy as to be able to depart from the ordinary conventional form, as in the case of Captain Wilson's school on Lake Pasquaney, where sixty or more boys are turned loose during the summer months to live, with little clothing and much exposure to sun and storm, and with principal exercises in military drill, gymnastics, swimming, boating, mountain climbing, and farming, then certainly the school must be for one sex. But desirable as a summer school of this kind would be for each of the sexes, it does not enter largely into our problem, excepting to say there are

certain parallel exercises in the general school which, in the very nature of the case, should be separate—namely, gymnastics, bathing, swimming, and heavier constructive and farming exercises, which should have a place in a scheme of education planned to conserve Nature. The argument for the school of coeducation, excepting for degenerates, still stands.

The period of early adolescence, then, is a period when the old foundations of the youth become unsettled. He must have opportunity for original inquiry and investigation in order to reach convictions. The doubt which psychologists say arises at this time is fundamentally necessary to make him an original thinker. He must have opportunity to depart from uniformity and to find out something for himself. The teacher can only give him association and perspective. It is a period calling, as a safeguard, for active outlet for overflowing energy. He must have laboratory work, industrial training, and physical exercise. The study or the plan of work which calls for long-continued sitting or passive exercise is not best for his interests as an adolescent.

Says Dr. Burnham: "Activity is imperatively necessary. Education for adolescence must no longer be mere acquisition; it must give outlet for action. For many this is necessary for mental balance; for all it is a means of saving waste energy."

All the studies of the school must take on laboratory character. There must be little opportunity for idle dreaming, for sentimental twaddle, and for riotous imagination. There must be inhibition by interested exercise, the drawing off of superfluous energy by ex-

penditure in commanding activity, the storage of the mind with noble enterprise, and salvation by contact with healthy, uplifting personality. While this is a time demanding individual initiative and prosecution, it is also a period which must have debate, in which, however, none are so well qualified to speak intelligently or to be heard so appreciatively as those who come to their convictions through individual opportunity.

Because the early adolescent age calls so much for the expenditure of superabundant energy in active exercise it is here called the period of the Gymnasium, which, under the nature involved, is a better name than the High School. It is not a period for platitudes and monotonous procedure, but for the expenditure of potential energy in kinetic exercises.

The studies and media of the gymnasium or high school are choices in the sciences, grammar, Latin (and possibly Greek), French, German, literature, history, algebra and geometry, design, creation, play, gymnastics, music, and art. The manner of dealing with these will be presented in our discussions on methods, the child, and the teacher.

Owing to the excessive growth during this period, the adolescent needs an abundance of wholesome food, omitting confections and pastries, nine hours of sleep with no overindulgence, well-directed occupation, the storage of the mind with good things, plenty of fresh air and exercise, and almost constant companionship.

Recognising the lofty function of reproduction, and that the child passing through this tremendous organic change is flooded with a growing sex-consciousness and

an overflowing of energy, which are to him sources of great danger, what are the duties of the parent and the teacher in helping him in this period of such portentous consequences?

The duty of the teacher has been largely outlined in the suggested adaptation of work. To the enlightened parent the child has a right to look for protection; but there comes a time when such questions as these can not easily be discussed by the parent with the child. The introduction of the work must be done at the initial period. If there is ever a time when the parent's duty is manifest, it is at this time when the child knows not himself but must come to his knowledge of great vital questions through sources, good or evil, pure or debasing. As Earl Barnes has so well said: "There are two sources from which this knowledge may be obtained—one true and pure, the other false and dirty. Nineteen twentieths of children draw their information from those . . . who possess the morbid, false, and dirty view. They master a vocabulary which dates back philologically to our Aryan beginning, but to print which is a crime. The view which these children obtain is an abnormal one, and when they develop they use their sex powers abnormally."

Dr. Helen P. Kennedy * says that "of 125 girls from whom she obtained written statements on this subject, 36 passed into womanhood with no knowledge whatever, from a proper source, of all that makes them women; 39 had received a very meagre amount of in-

* Child Study Monthly, vol. iv, p. 81.

struction, while less than half of the whole number felt free to talk to their own mothers on this important subject."

Says Dr. Jeanette W. Hall: "Are we going to allow our boys and girls to come to this critical period in their lives unprepared to meet and cope with its dangers? Shall we sit quietly down with the means in our possession to present this subject in its pure and noble aspect and allow some one else to poison the minds of our children and inflict upon them a view of sex and reproduction from which they can never free themselves? Shall our girls become invalids through ignorance and our boys be robbed of half their manhood because of our superrefined delicacy? . . . Let us rather attain to that height from which we ourselves can look out upon this subject freed from all impurity and see in reproduction the crowning feature of God's great plan of life. Then, with a scientific knowledge of the subject, let us present it to our children that they may look upon puberty as a phase of life as sacred as birth or death and as pure as infancy or maturity, and upon reproduction as a sacred power."

The function of the teacher, *in loco parentis*—man teacher for the boys and woman teacher for the girls—in bringing to the adolescent this nobler conception of being and life, is the most difficult and yet the highest one in all pedagogy. At this time of stress and storm, of budding strength and conscious weakness, of doubt and yet need of light, the child seeks his confidants. If there is ever a time when "the confessional is the soul's clearing-house" (Hall), that time is now. The intelligent teacher may have a duty here, hard to read

and difficult of accomplishment; but it is frequently a field where "fools rush in where angels fear to tread." This is, however, a matter primarily for the father and the mother.

But we must pass in our discussion to other phases of our ideal school. The college and the university, following the gymnasium or high school, do not come within the province of our problem. They are given their places in our general course of study simply to show function and relation. We need not stop to discuss these phases of higher education. Their provinces and suggested characteristics are indicated on the diagram.

Should not the college be discussed here to show what higher education has a right to expect from the high school? Is not your high school to be a preparatory school for the college?

No, not to any considerable extent. The college must be the successor of the high school. It must take up the work of the capable student wherever he may happen to be.

"But," exclaims some high-school principal, "the colleges make their demands and state their requirements in terms of uniformity. How shall we escape this domination which destroys our opportunity for individual conservation?"

I will tell you how it can be done. It must be by the better high schools declaring their independence. The time is rapidly passing when the colleges can dictate what shall be the education in the secondary schools. The colleges are in the business for students. Just as soon as they find that they can not get stu-

dents on their own terms they will take them on the terms whereby they can get them.

I do not doubt that many strong, capable people, who come to opportunity for liberal culture unexpectedly late in life, are denied their just rights by the present attitude of the colleges. The magnificent school founded by Mr. Moody for this class of men and women is an exception which must determine the rule in colleges all over the land. I once knew a bright literary woman who, in the midst of a life devoted to culture as a student, poet, economist, and lecturer, suddenly came to the desire to gain from the methods of the college. But this brilliant literary woman had never been in what the world calls the school more than a few months in all her life. Her whole career had been spent amid the culture of literary surroundings, in the presence of books and scholarly people, and in literary creation; but she had not the technique of the school. "Why," said the college executive to whom she applied for admission, "we all respect your literary ability; but under the requirements of our institution I do not see that you present anything on which our precedents would allow us to grant you an admission."

When will our colleges learn that they must find something else besides text and graveyard epitaphs as the basis for the measurement of creative mind? And when will they realize that they must take the capable student just where they find him in his desire for higher education? As President Jordan has so well said: *

* Jordan's Care and Culture of Men.

"The rewards of investigation, the pleasures of high thinking, the charms of harmony, have never been for the multitude. To the multitude they must be accessible in the future. Not as a gift, for nothing worth having was ever a gift, rather as divine right to be taken by those who can."

There is another reason why the college has been placed on this chart in connection with the plan presented for secondary education, as will be apparent by reading between the lines. We are in an era of tremendous high-school advancement, particularly in our cities. The attendance is now so large in our high schools that the change in conditions from this element of numbers will soon render it expedient for the state to furnish these young people their college education at their own homes, rather than send them away where expenses are so much heavier. The equipments of some of our newer high schools, like those in Springfield, Mass., Holyoke, Mass., Oakland, Cal., and other cities, dwarf many of our colleges. The high schools all over the country are now doing practically what the colleges did fifty years ago; and the city high schools, of reconstructed type, purely for economy's sake will soon be called upon to assume the lower work of the present college.

Something of this kind is to be attempted in the new Jacob Tome Institute, at Port Deposit, Md., which proposes to establish a new degree of associate for those who there complete the first two years of the college. The University of Chicago, it is said, is to give this same degree at the end of the two years' course, hoping eventually to drop all work below this point of recogni-

tion and to assume its position as a true university. President Eliot's work has long been pointing to the same general issue. This, then, will create for the larger high school a new field, which economically it is well prepared to occupy. Indeed, a few high schools are even now offering opportunity for post-graduate high-school work.

CHAPTER VIII.

INDIVIDUAL VARIATIONS.

"If symmetry is to be obtained by cutting down the most vigorous growth, it would be better to have a little irregularity here and there." (Agassiz.)

THE course of study outlined in the last chapter has been presented because there must be some backbone to a school plan; but in the proper training of individuals it can serve only a general purpose. For convenience in comparison the usual factor of years is approximately indicated; but in our scheme for scientific education we must now drop the time element which has so long dominated both colleges and schools. The diversities in the human animal are the most unlimited and complex of all life. The variations in height, weight, proportion, temperament, food habits, interests, activities, endurance, and opportunities are so wide in their range and so complex in combinations that no one course of study can possibly meet the just needs of the many individuals whose interests are to be conserved. Every individual reaches his supreme possibilities in the fact that he is an individual and that his characteristics are peculiar to himself.

Heredity.—It is true that all children are descended from Adam, but the lines of descent are very different. Under the conventionality of modern artificial life dif-

ferent individuals may take on many common traits and imitated characteristics; but still both immediate and remote ancestries are very diversified, and the child comes to the present a personal *ego* plus the enormously diversified heritages of the past. As Spencer has said, "To educate a child you must begin back with his grandfather." The Pentateuch (Ex. xx, 5; xxxiv, 7; Num. xiv, 18) explicitly declares that the iniquity of the fathers is visited "upon the children, and upon the children's children, unto the third and to the fourth generations." Bradford states: "All schemes of culture should begin with the recognition that each child is different from any other, that the lines of difference run far back, and therefore are not superficial; and that, in order to secure the highest efficiency, systems of education should be adapted to the individuals to be reached." Heredity, then, is a fundamental factor in variation and must be considered in education. The *ego*, the divine spark, plus ancestral inheritance, can not be ignored.

Even the children of the same parents come into the world diversified greatly by prenatal conditions; so much so that the several children of a given family, while bearing marked resemblance to parents in common traits, are types peculiar to themselves. One child is tempest and another is sunshine; one is phlegmatic and the other nervous in temperament; that which will do well for one child will not do at all for the others; and so each family has a little world of variety in itself. If there is so great difference in the children of the same family, where, because of common parentage, association, shelter, food, clothing, and general home culture, one might expect some degree of similar-

ity, how much more should we expect variations in the fifty children of a school, where certainly parentages and nationalities are far from uniform!

Environment.—So the child comes into the world a personal unit plus heredity. But how different the environments! The variations of home conditions from the rural to the urban, the differences in attendance, food, shelter, clothing, responsibilities, companionship, past instruction, sicknesses, injuries, opportunities, and all the thousands of circumstances, conditions, and incidents which go to make a person the "product of all he has ever met" and been—how endlessly varied the process, how diversified the product! It is this product which comes to the school room, to have worked into the soul all the varying receptivities and reactions of the strengths and weaknesses of each succeeding step of instruction. The Child of a King, plus heredity, plus environment, stands at the door of the school and knocks, asking for that which uniformity can never give.

Before the teacher, frequently of limited horizon and questionable motive, there gather in the school fifty children. Whence came they? They are the children of God, born of modifying parentages and conditioned by an evolution which knows no uniformity. In sizes, weights, temperaments, physical health, responsibilities, capabilities, and opportunities, what a heterogeneous assemblage! Side by side, in the same school, sit the children of wealth and of poverty, of native and of foreign descent, the well-fed and the meagrely nourished, the warmly clad and the scantily protected from the storm, the refreshed by adequate sleep in rooms of pure air and those worn from meagre hours of rest in a

crowded, unventilated room, the child of luxury and the one of heavy responsibilities, the spoiled by indulgent parents and the independent through forced self-reliance, the robust in physical health and the incapacitated by past sicknesses and injuries, the well-taught and the ill-taught, the child of virtue and the one whose whole life is a moral struggle, the child of encouragement and ambition and the one heart-sick and of little expectancy. Is this an exceptional school? If not, what are the individual rights of these children? How can any system of uniformity answer the responsibility which it assumes?

The Growth of Children.—Not for purposes of definition, but for general illustration, it may be well to follow this necessarily brief reference to heredity and environment by a presentation of some of the variations in physical characteristics, as typed, perhaps least of all, in heights and weights.

Burk's study of the growth of children * deduces some very important facts to be conserved in a general scheme of education; but the complexity of the problem is enormously increased by the tremendous range in the heights, in terms of inches and years, given in his adapted tables showing the results of the measurements of 45,151 boys and 43,298 girls made in the cities of Boston, St. Louis, Milwaukee, Worcester, Toronto, and Oakland.

The following section (8–15 years) from Dr. Bowditch's table, giving the measurement of Boston school children, shows approximately the same range of variations:

* American Journal of Psychology, vol. ix, p. 267.

Variations in Heights of Boston School Boys.

Inches.	8 yrs.	9 yrs.	10 yrs.	11 yrs.	12 yrs.	13 yrs.	14 yrs.	15 yrs.
74.....	..	..	..	..	..	..	..	1
73.....	..	..	..	..	..	..	..	..
72.....	..	..	..	..	..	..	..	..
71.....	..	..	..	..	..	..	..	1
70.....	..	..	..	..	..	..	..	3
69.....	..	..	..	..	..	..	6	4
68.....	..	..	..	..	..	1	5	14
67.....	..	..	..	..	..	3	12	19
66.....	..	..	..	..	..	1	8	25
65.....	..	..	..	..	..	6	20	37
64.....	..	..	..	..	1	4	32	38
63.....	..	..	..	1	3	13	32	35
62.....	..	..	..	..	6	18	35	42
61.....	..	..	..	1	4	30	34	26
60.....	..	..	..	2	16	32	39	31
59.....	..	..	..	5	23	46	42	29
58.....	..	..	3	12	38	48	49	14
57.....	..	1	5	19	28	44	27	6
56.....	..	2	15	48	48	58	14	5
55.....	1	4	26	45	61	28	11	5
54.....	3	12	34	49	52	26	6	4
53.....	5	21	45	46	40	20	..	2
52.....	10	34	68	53	24	4	1	1
51.....	21	54	57	28	20	5	2	
50.....	44	67	44	25	4	2		
49.....	70	75	44	11	2	1		
48.....	75	50	11	3	2	..		
47.....	68	41	6	..	1	1		
46.....	50	12	..	1				
45.....	35	6	..	1				
44.....	11	1	2					
43.....	11		..					
42.....	..		..					
41.....	..		1					
40.....	1							
39.....	..							
38.....	1							
37.....	1							
36.....	..							
35.....	1							
	407	381	360	350	373	391	386	342

For complete tables, see Dr. Bowditch's Growth of Children in Papers on Anthropometry, 1894.

Variations in Weights of Boston School Boys, showing Number of Boys of Each Age. (Based on Dr. Bowditch's Table.)

Pounds.	8 yrs.	9 yrs.	10 yrs.	11 yrs.	12 yrs.	13 yrs.	14 yrs.	15 yrs.
186–190.	..	..	..	..	..	..	1	
182–186.								
178–182.								
174–178.								
170–174.	..	..	..	..	..	..	..	1
166–170.	..	..	..	..	..	..	1	1
162–166.	..	..	..	..	..	..	..	1
158–162.	..	..	..	..	..	..	..	1
154–158.	..	..	..	..	..	..	1	1
150–154.	..	..	..	..	1	..	..	4
146–150.	..	..	..	..	..	2	..	2
142–146.	..	..	..	..	..	1	1	14
138–142.	..	..	..	..	1	3	5	12
134–138.	..	..	..	..	1	1	9	13
130–134.	..	..	..	..	..	3	9	20
126–130.	..	..	..	..	2	3	14	26
122–126.	..	..	..	..	2	4	15	30
118–122.	..	..	..	..	..	5	26	37
114–118.	..	..	..	..	4	12	35	44
110–114.	..	..	..	..	5	15	34	59
106–110.	..	..	1	..	8	30	47	53
102–106.	..	..	2	3	12	41	70	60
98–102.	..	..	..	3	16	59	69	56
94–98..	..	..	1	13	32	60	92	47
90–94..	..	1	4	16	57	93	103	50
86–90..	..	1	12	29	76	131	97	37
82–86..	1	3	18	56	129	151	96	30
78–82..	1	2	42	100	157	177	72	19
74–78..	3	23	112	175	219	158	50	11
70–74..	11	55	166	235	219	117	34	5
66–70..	30	121	270	258	144	52	20	3
62–66..	106	251	262	201	100	28	3	
58–62..	210	343	227	117	36	10	2	
54–58..	333	336	150	64	24	4	1	
50–54..	424	208	79	18	8		1	
46–50..	251	76	14	5				
42–46..	91	14	2					
38–42..	19	3	1					
34–38..	1							
	1,481	1,437	1,363	1,293	1,253	1,160	908	636

The heights and weights of girls vary fully as much as those of boys. For other ages see Dr. Bowditch's tables.

Variations in Brain Weight of Eminent Men. Compiled from Records of Marshall and Manouvrier.*

Age.	Encephalic weight. Grammes.	Eminent man.
39.....	1,457	Skobeleff, Russian general.
40.....	1,238	G. Harless, physiologist.
43.....	1,294	Gambetta, statesman.
45.....	1,403	Assezat, political writer.
45.....	1,516	Chauncey Wright, mathematician.
49.....	1,468	Asseline, political writer.
49.....	1,409	J. Huber, philosopher.
50 (?)	1,312	Seizel, sculptor.
50.....	1,378	Coudereau, physician.
52.....	1,358	Hermann, philologist.
52.....	1,499	Fuchs, pathologist.
53.....	1,644	Thackeray, novelist.
54.....	1,520	De Morny, statesman.
54.....	1,629	Goodsir, anatomist.
55.....	1,520	Derichlet, mathematician.
56.....	1,503	Schleich, writer.
56.....	1,485	Broca, anthropologist.
57.....	1,559	Spurzheim, phrenologist.
57.....	1,250	V. Lasaulx, physician.
59.....	1,436	Dupuytren, surgeon.
60.....	1,533	J. Simpson, physician.
60.....	1,488	Pfeufer, physician.
62.....	1,398	Bertillon, anthropologist.
62 (?)	1,415	Melchior Mayer, poet.
63.....	1,449	Lamarque, general.
63.....	1,332	J. Hughes Bennett, physician.
63.....	1,830	G. Cuvier, naturalist.
64.....	1,785	Abercrombie, physician.
65.....	1,498	De Morgan, mathematician.
66.....	1,512	Agassiz, naturalist.
67.....	1,502	Chalmers, preacher.
70.....	1,352	Liebig, chemist.
70.....	1,516	Daniel Webster, statesman.
71.....	1,207	Döllinger, anatomist.
71.....	1,349	Fallmerayer, historian.
71.....	1,390	Whewell, philosopher.
73.....	1,590	Hermann, economist.
75.....	1,410	Grote, historian.
77.....	1,226	Hausemann, mineralogist.
78	1,492	Gauss, mathematician.
79.....	1,254	Tiedemann, anatomist.
79.....	1,403	Babbage, mathematician.
79.....	1,452	Ch. H. Bischoff, physician.
80.....	1,290	Grant, anatomist.
82.....	1,516	Campbell, lord chancellor.

* Donaldson's Growth of the Brain, p. 128.

The following brain weights are also recorded: Oliver Cromwell, 2,231 grammes; Byron, 2,238 grammes; Turgenieff, 2,021 grammes; but these are perhaps without satisfactory collateral evidence, unless it be in the case of Turgenieff.

Certainly these tables, reduced to a composite and shown in curves, are exceedingly significant and have their places in general considerations and plans; but the point is raised that no school mechanism can justly answer the requirements of the variations typed in small degree by these physical conditions. If there exists this range of physiological differences, represented here by heights and weights only, besides which are an endless and limitless number of other factors, it can be depended on that there is an infinitely greater variation in the psychological characteristics.*

Psychic Variations.—Notwithstanding the wide variations in the general physical characteristics of children, which are faintly hinted in heights and weights, the variations in psychological characteristics are infinitely greater. The tables of brain weights given by Vierordt and Boyd are of great general value, but the characteristics which make the child, the man, or the woman can never be measured in ounces or grammes. The immense range in brain weights indicated in the tables of Marshall, Manouvrier, Bischoff, Vierordt, and Boyd, and the finer quality of the mind of woman compared with man, must forever establish the fact that the human mind is

* C. W. Hetherington, formerly instructor at Stanford University, but now at Clark University, has for several years been working on a Psychology of Individual Differences, which, when completed, will open up an enormous field of possibilities.

conditioned by physical organs and environment only in elementary ways, above which the transcendentalism of the psychic and the infinite variations of the *ego* find illimitable expression. The personal equation is a composite absolutely unique. The varying circumstances and constituencies of an endlessly diversified heredity, modified still more by an environment never identical, and all the countless elements which attend a life of free-will agency, contribute to make each individual a personality peculiar to himself. Far more than differ the leaves of the forest man is differentiated in his wide range of psychic characteristics, unclassifiable and illimitable. It is the greatness of man that he is infinite in the range of individuality; and the world is richest in the individual's reaction in achievement, in contribution, in co-operation, and in happiness.

Every teacher has before her in the school room a variation in human history, in individual abilities, and in unbounded future that needs no outside illustrations to establish the doctrine here advanced. No two classes are alike in abilities, and no two children of even the same parents are duplicates. How infinitely greater, then, must be the variations in personality of the forty or fifty individuals who have come to the present with all the wide range of conditioning factors that enter into life! The recognition of these individual differences must be fundamental in scientific education.

The existence and range of these variations have been but faintly comprehended in the policies of schools. Children of all degrees of ability, opportunity, natural endowment, and life purpose have been classed together.

Three factors—the child's best development, a time element, and uniformity in requirement, which can never constitute a perfect unity—have been the erroneous and impossible trinity of the schoolman's *ignis fatuus*. Under the operations of this uniformity these wide-ranged variations have disappeared from view. School people have been thinking of an average which conserves really only a small number of pupils and loses sight of an almost infinite range of variations not easily recognised. Attention is once more directed to the table of ages.* It is apparent that the average age completely loses sight of the enormous number of individual extremes, which in this case is startling.

It has been supposed that a graded school fairly well gathers together in classes those of uniform ability. The fallacy of this policy is well shown in the various tables indicating the differentiation of working abilities, elsewhere presented.† The very existence of these differences in abilities demands that the school must give individual opportunity.

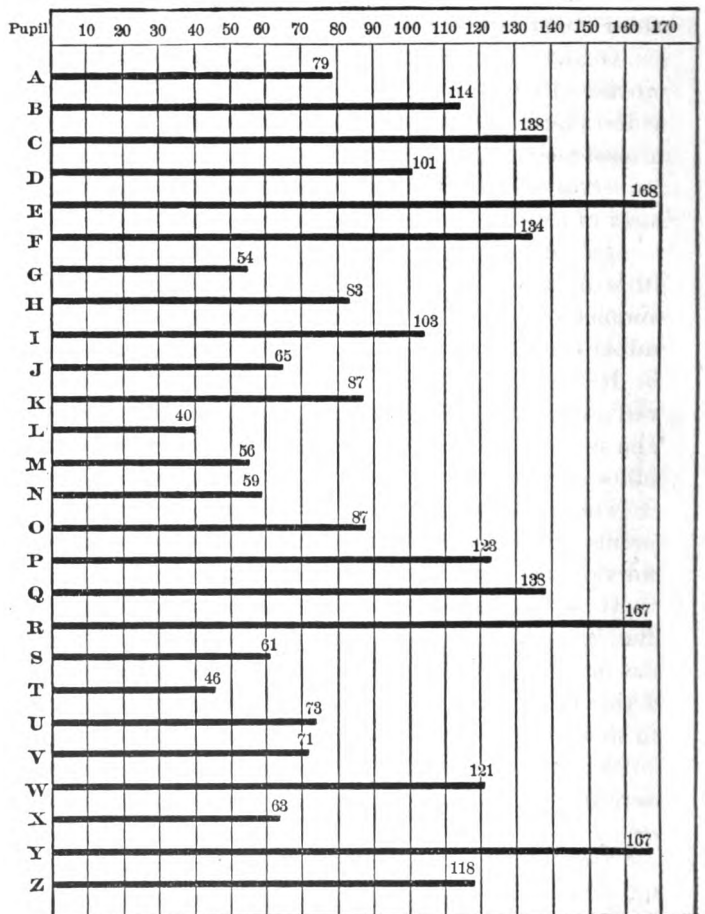
It is frequently supposed that the senior class in the high school, representing as it does the survival of the most favoured, is fairly well graded. Let us see if this is the case. From many studies throwing light on this question, attention is directed to the one on the following page from the Field High School of Leominster, Mass. Mr. Wallace E. Mason, the principal, is one

* Table of Ages, Chapter II, p. 19.

† The reader is requested to turn back to the tables representing the differences in working abilities as shown in the studies of the free working classes in Latin and mathematics, described in Chapter II, pp. 29 and 33.

SENIOR REVIEW GEOMETRY, FIELD HIGH SCHOOL, LEOMINSTER, MASS.

September 6 to December 14, 1899. Lineal measurement of work accomplished by class of 26 pupils. The figures at the top represent units of work.



of the leading individualists of the country, and from many studies similar to this has long since recognised the injustice of herding children.

On the very face of this enormous variation in the working abilities of a senior class, how utterly unjust is the practice of ranking pupils by honour or any mechanism which compares that which can not be compared!

"But," says some one, "this surely can not represent an average high school."

It does not represent an average high school, for in its essential conservations it is infinitely above the average high school. But this much is true: every attempt made in this country (and illustration could be made by scores of examples) to permit pupils to work according to their natural abilities has shown approximately the same wide range of variations. (See tables in Chapter II.)

What is the graded school going to do with these pupils who have covered only fifty or sixty units of work? Are they qualified for graduation? Certainly they are as far as anything is shown by this table. But suppose a lower class in the ordinary elementary or secondary school exhibits this range of variation; what becomes of the pupil accomplishing only forty or forty-six units?

"Such a pupil," replies some schoolman, "is never permitted to do only forty or fifty units. He is helped on by the momentum of the class."

I will tell you what becomes of him. If he holds his courage together long enough to get that far along he is rushed over work he does not understand. If he is not promoted, he repeats exactly the same work he

had before; a year is taken right out of his life. If he does not repeat the grade, his work is full of rotten places on which no solid superstructure can be built. Is it a matter of any surprise that school work has no personal interest to him, that he goes "as the quarry slave scourged" to his task, that he is a miserable misfit, to be dubbed, by the ignorance of the school, a dullard or a dunce? *But the fact of the matter is, he is soon crowded out and is not counted in the "number belonging."*

On the other hand, what opportunity in the graded school has the pupil who has accomplished 168 units of work, or the two with 167 units? Certainly more than the one of 40 units, because three fourths of the teacher's time is usually spent on the bright pupils. But have these rapid workers full, free opportunity to live up to the best that is within them? And, after all, in the light of the world's experience with the flowering of great men, is it not a mistake for the school to say who are the superior souls, and whether they are to be found among the precocious or the plodders?

Says Dr. Edward Everett Hale: * "I came home at the end of the first month with a report which showed that I was ninth in a class of fifteen. That is about the average rank which I generally had. I showed it to my mother because I had it. I thought she would not like it. To my great surprise and relief she said it was a good report. I said I thought she would be displeased because I was so low in the class. 'Oh,' she said, 'that is no matter. Probably the other boys are

* Dr. Hale, in How I was Educated.

brighter than you. God made them so, and you can not help that.' "

In a recent address before the British Medical Association, Dr. G. E. Shuttleworth remarks: * " A rational educational system will of course recognise the fact that all children are not cast in the same mould; that there are inherent, often inherited, differences in each pupil's powers, and that to obtain the best results, instruction must be adapted to idiosyncrasies and proportioned to varying capacities."

Evolution, in its uplift of all life and particularly in the ascent of man, has reached its heights through processes that have always recognised the values of strengths. If the differences in innate potentiality count for nothing, then there is no use of the horticulturist exercising care in the selection of seeds; one kind will produce as good fruit as another. If natural endowment had contributed nothing to progress and achievement, a sorry world this would be. Success in future mission is dependent on the evolution of the innate in man in adjustment to the purposes of life. It is a revelation to note that the creators in the world of science and industry have to no considerable extent come up through the graded school; that the successful business men of the day were not trained in the city; and that even the students who have knocked at the door of the college have largely come from outside our mechanical system.

Several questions present themselves for consideration. First, to what extent should the school aim at

* Dr. G. E. Shuttleworth, in Mental Overstrain in Education.

symmetrical development? Second, should it be built primordially for development along lines of strength? Third, how shall individual training be possible in mass education? Fourth, what place has individuation in the preparation of man for his higher sociologistic relations?

Question first: To what extent shall the school aim at symmetrical development?

Simply for the correction of weaknesses in so far as they condition man's happiness and the normal exercise of higher faculties. But these weaknesses must be reached by their individual recognition and by prescription of exercises best calculated for their correction. This opens up a field infinitely larger than the school has ever attempted to occupy. To whatever extent related studies and exercises condition the best expression of higher faculty and endowment, symmetrical education has something to offer, but no further.

What folly there has been in putting a surfeit of mathematics on certain girls, when there may be a hundred other departments of work in her particular field where these girls may surpass their schoolmates! This one practice, illustrative of others, tells of a fearful misapplication and loss of energy which could have been utilized with enriching results in the best development of the pupil.

Question second: Shall the school be built primordially for development along lines of strength?

Most certainly so, with all normal individuals. With the general correction of weaknesses already discussed, and with enough of general introduction and survey to enable the pupils to choose wisely, education

should early take on a recognition of natural endowments, chief interests, and well-defined trend. Man is too complex to permit much development in all directions. Besides, he was not created symmetrical, as the world counts symmetry, and in his life upward he has reached all his achievements in science, industry, literature and art through the exercises of faculties wherein he has been individually the most gifted. We need an education of differences, of parts wherein man is individually the strongest. As President Jordan has better said, if a man proposes to climb a high mountain it does not pay him to waste his energies in climbing all the foothills in the neighbourhood. Even so, it is a good thing for a young person early to find his leading interest and then give opportunity for his growing strength.

Question third: How shall individual training be possible in mass education?

The solution of a problem so vast as this certainly has its very great difficulties. Under ordinary circumstances it is almost impossible to do much, for the moment attempt is made to conserve the interest of the individual, just then education becomes complex and continues to grow in difficulty in proportion as such conservation is realized. But that is not the first issue to be considered. If the best education of child or man is reached through his consideration as a personal being, requiring a specific study of his nature and interests and an individual prescription of exercises best calculated to give free expression to his growing strength; if his education is to continue all the natural processes which, through evolution, has given us the

glory of all life; and if it is to respect the fundamental principles of divine economy as exemplified in all that goes toward the making of character—then the first duty for the educator is to attempt to furnish that education. The fact that the individual must find his education in contact with the mass is entirely to his advantage; but he in turn has the most to offer the mass in proportion as he is educated as an individual. The details presented in our discussion of methods will give some living illustration of how enterprising teachers are finding their way to an effective answer to this question.

Question fourth: What place has individuation in the preparation of man for his higher sociologistic relations?

Let not the position of the individualists be misunderstood. There is no intelligent one of them who believes in isolation, or who despises the proper place of the class and of the lecture, or who forgets man's relations to his fellows. The individualist holds that the school must fit the child; that it must eliminate uniformity in requirement, passive waiting, dead time, repetition of lessons because of others' faults, premature skipping and half-way performance of important exercises, non-promotion, bad motive, and unjust rivalry. He demands that there must be recognition of heredity and environment and trend as conditioning factors; that there must be opportunity for the exercise of natural endowment, living interest, and choice; that there must be continuous progress, daily promotion, the performance of work of specific fitness, and the working of one's soul into the process; that there must be closer

and more sympathetic association with higher personality; and that all of one's education must be related to life purposes. Every school plan must be tried by the test to what extent it better fits man for his relations with his fellows; in what way he can make the highest contribution to the happiness and enjoyment of mankind. This is the fundamental purpose of the better education of the individual. The perfection of the community is dependent on the perfection of the individual. "The best field of corn is that in which the individual stalks are most strong and most fruitful. The strongest nation is that in which the individual man is most helpful and most independent." (Jordan.) There can be no great development of society excepting as the individual is made the unit in education. "No chain is ever stronger than its individual links."

If the school is to be life, as Professor Dewey says it must be, it can only reach that realization by conforming its processes to life. All business life, in the rise and fall of commercial man, is conditioned upon the individual. Man's industries and achievements in every field of science, literature, art, and economics have no other foundation. The law of the court recognises only individual responsibility. The church accepts no other person's confession of faith. In the whole realm of ethics and divine economy, all for the benefit of universal man, there is no recognition of any plan by which society may become strong and good, excepting as the individual unit is strong and good. It is the universal law of Nature, of man, and of God. In no other way can come being, growth, and salvation.

Then the individualist is the true sociologist, because he furnishes the only foundation on which good society can be built—the capable unit. To ignore, simply from the suggestion of the term, the high purposes and ultimate end of individualism, is a misconception of great ideals. The individualogistic purposes in education have no value whatever excepting as they are swallowed up in the higher sociologistic relations of man, of which they form the nucleus essence. *By this measure of sociologistic value everything in the plans to follow should be tested.*

CHAPTER IX.

ILLUSTRATIVE METHODS.

"Did the Almighty, holding in his right hand Truth and in his left hand Search after Truth, deign to tender me the one I might prefer, in all humility but without hesitation I would request Search after Truth." (Lessing.)

UNDERSTANDING now that our school is to be organized under ideal circumstances, and with proper correlations, it is desirable that the division of instruction should be largely departmental for all grades above the play school. The arguments for this form of organization are:

1. That the child may be in contact with the richer suggestions of several minds.

2. That the child may be longer in association with a given teacher for the sake of personal influence and that his work may be better related and more continuous.

3. That he may have, in his early years, the same high quality of instruction that has been vouchsafed to the university student.

4. That every study may have its well-equipped laboratory, which is largely impossible when equipment is divided up and duplicated in many scattered schools.

"I call your first proposition into discussion at once," remarks some grammar master. "Wherein is the superior value of contact with several minds?"

With several teachers the child's views of life are more normal, each being corrective of the other; his conceptions are fed from a richer source, just as one gets more from a glimpse into the gardens of an expert horticulturist than he does in the garden of the ordinary home; just as also the child who has travelled and seen much has the wider fund of knowledge on which to base his imagination and generalizations.

"I agree with you," says a teacher, "in your statement that a pupil's work in a given subject may be better connected, freer from rotten places and overlaps with more opportunity for short-cuts, and may be done in a shorter time; but how about the question of influence? How can the teacher have as much chance to know the child and for influence, when there are, say, five teachers, giving her only one fifth of the child's time?"

On the basis of one year's procedure, I admit that there might be loss in this respect; but we must not forget that the same teacher would be with the child for five years and probably longer. This of itself is more than compensation.

Is not the discipline more difficult when the work is departmental?

It is more difficult, because the weakness of an inferior teacher becomes more apparent. The pupils have opportunity to know good and bad, and rebel against imposition. It is infinitely better that this should be the case than that a child should remain five-fifths time under a poor teacher. Besides, it soon weeds out the poor teacher.

Do you think that the quality of the instruction would be better?

Most certainly I do. It would raise all teaching to the level of the specialist. Probably not more than one third of our teachers can properly give instruction in music, and scarcely more than that number can do very high work in drawing. It is probable this would appear true of all the other studies, if the inadequacies were as easily recognised. It is not simply that teachers are not endowed equally, but they have not time to prepare for universal work to any high degree of excellence. Departmental work ploughs much deeper furrows. Besides, it would bring the descent of higher scholarship and higher method into the lower grade school. Sometimes there is more education in a single half hour in contact with a superior soul than in a month of ordinary school-room work where no one exercise can be very much vitalized with great inspiration.

"I have observed," remarks some interested mother, "that departmental work often leads to overdemand from the teachers. As each teacher is anxious to get full value to her department and does not know how much assignment of work has been made by other teachers, the child is worked up to the highest notch of endeavour and frequently much overworked."

That is true under the older forms of work where the work is performed under assignment of the day before; but in our school there is no technical study out of school. The work is largely laboratory. All the child's time, devoted to any given study, is performed in that laboratory; and when he leaves that room he also leaves that department of work. The child has

opportunity to do to-day just what he can do to-day. To-morrow's work takes care of itself when to-morrow comes.

Would you have the pupils change from room to room, or would the teachers exchange places?

Preferably the pupils should change. This enables us to centre equipment in a given room and make it a laboratory in every sense of the word. Think, under the plan of a school park where hundreds of children of approximately the same age are gathered together, of the enormous opportunity there would thus be to centralize equipment, otherwise scattered and duplicated, in the enrichment of the various laboratories, and yet at much less expense. The school furniture would be of the right size. The several rooms, of even the same department, would be grouped together with adaptation for study, laboratory work, seminar, lantern illustration, and lecture. Literature would be taught in a library; science would have its rooms for all kinds of investigations; the history room would be adorned with globes, charts, pictures, reliefs, books, curios, and original data; mathematics would have its tools and instruments for measurement and application; geography, its globes, reliefs, maps, books of travel, specimens, museum and representative forms; art would have its studio; music, its concert chamber; the gymnasium, its room for measurements, mechanical room, exercise room, play room, and baths; manual training, its shops of different trades, etc.

The centralization of the barren rooms and meagre equipment, ordinarily scattered through a city because of many buildings and repeated duplications, into a

single great plant like that described, would give, without extra expense, a miniature world and opportunities of such character that even the child in the primary school would be lifted into the richer atmosphere that has hitherto belonged exclusively to university life. In less degree, departmental work, under proper organization, has its value in any school.*

It is to be recognised, however, that in departmental organization there is always possible some correlation of related subjects around major factors. This materially simplifies the programme, does away with so much fragmentary work, and greatly economizes time and effort.

How about the time wasted and the difficulties in discipline attending on such movements of pupils?

There is never time wasted in the intervals between exercises. As far as the difficulties in discipline go, it is a good thing that there should be some free vent and movements between periods of work. The best order in the world can be found in a graveyard. However, difficulties of this kind arise largely from lack of proper organization. In one of Superintendent Vansickle's schools in North Denver, Colo., I saw a thousand children moving freely in the halls, with no direct supervision, but without the least disturbance.

Physical Culture.

The problems involved in the physical training of children are those pertaining to food, sleep, exercise,

* See President Eliot's address on Secondary Schools before the New York Convocation in 1895, Bulletin No. 32.

proper mental stimuli, and, for some cases, mechanical correction of malformations.

Food.—Even in this enlightened age the essential elements and distinctive purposes of foods are little understood by those who have the feeding of children. The fact that all children can not well be fed alike, that there are differences between the child and the adult, and that different kinds of occupations frequently call for specific foods, enters to no considerable extent into our home domestic economy. There must be a more intelligent co-ordination between the school and the home, for which the home is ready whenever the school is prepared to lead. The home in the past has received little from the school in the way of communications, excepting concerning delinquencies for which the school probably has been at fault. The enormous association of mothers in club organizations throughout the country, following the leadership largely of Superintendent Dutton's community work * at Brookline, Mass., presents an opportunity which the school should utilize. If capable school people, under wise procedure, will prepare suggestions for the scientific feeding of children, the mothers of this country will rise up and call such a school blessed. The delightful little monograph, Suggestions for School Work, prepared by the Women's Club (1,000 members), of Denver, Colo., is a magnificent illustration of what earnest helpfulness may do from one side of this question. Now, what can the school do from its own well-qualified standpoint?

The pupil's book of prescribed directions concerning

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* Dutton's Social Phases in Education.

food, sleep, and exercises, prepared by Miss Caroline B. Palmer * for her six hundred girls in the Oakland (Cal.) High School, is the best thing on this subject yet issued by any school.

In our ideal school the noonday meal, and perhaps two meals for the little ones, will be served at the school; not to save time, but as a desirable school exercise. This will not be the questionable lunch furnished in many schools, but a better meal of proper food, to be followed by ample relaxation and play. Such a meal is also a valuable social and economic exercise, of great influence in carrying higher ideals into many homes.

Cooking, taught in the schools, will be a great help in leading to a day when school children will be better fed. The drinking of an abundance of pure, distilled water needs also encouragement from the school. Few people drink enough water.

Sleep.—The importance of adequate rest can scarcely be too much emphasized. As a rule, students do not spend enough time in sleep; and the hours actually spent in sleep do not always have full time given to relaxation. Normal fatigue in itself is a good thing; but no one "has a right to incur more fatigue in a day than the sleep of the next night will recover from" (Drew). To go without adequate sleep should be regarded as a physical crime, and this fact should be taught by the school. As has already been stated, the children of ages five, six, and seven need approximately

* Miss Palmer was formerly associated with the coterie of workers having in charge the educational experiments connected with the Industrial Public Schools of Pueblo, Colo.

twelve hours of regular sleep; of ages eight, nine, and ten need eleven hours; of ages eleven, twelve, thirteen, and fourteen, ten hours; of ages fifteen, sixteen, and seventeen, nine hours or more; and even students of the college and university can not well afford to take less. The desirability of a midday nap for all ages should not be overlooked. Children should be educated to the doctrine that no one ever loses time by seeking rest and recuperation.

This is another subject where the co-operation of the home and school is essential. It is a legitimate province for suggestion from the school.

From the practices of the Pestalozzi-Froebel House, of Berlin, there comes a suggestion for the play school. At midday, after the hour of play intermission, the children, thirty or forty in number of kindergarten age, are gathered in a large room, where on floor rugs each one stretches himself out for his noon nap. The windows are darkened, the children close their eyes, soft music is played, and in a few minutes the entire school is asleep. Why should a child asleep at his desk in an American school be such an unusual thing?

Physical Exercise.—We come now to the consideration of exercise. Nothing in all the possibilities of the school can take the place of free play. Calisthenics are right in their place, but play is the law of growth. The best exhibition in the United States of play as a school factor can be seen at Andover, Mass. Here sixteen acres or more are the playground of 670 pupils. The entire school plays—teachers and all. Such a *repertoire* of plays, calling into co-operation the entire school, nowhere else was ever seen. And what delighted children

and equally profited teachers! What merry laughter, sparkling eyes, ruddy cheeks, and active limbs! And, after that, what sympathy in the school room and turning of other energy on delighted work!*

Here is the sand yard for the little ones; grounds for basket-ball, tennis (three courts), baseball, and running games for the older ones; games of all kinds for the entire school; and without are the passers-by, pausing in the street to watch the merry children at play, and wishing themselves young again.

Besides, play being Nature's normal exercise, nowhere else can the teacher gain such an influence for good over her pupils. To the glory of Andover, be it said, the teachers all play. What a happy spectacle, also, it has been to see the great president of Stanford University playing baseball on the college diamond! For three years the university faculty team was so strong that the students could not wrest from them a single victory.

Tributary to effective results in every other department of work, well-equipped gymnasiums occupy central positions in our plans for the intermediate and high schools. Good health is so much a condition subject to command, that the means to such command must be carefully taught. This is not simply as a means to well-being in the present, but also a preventive of

* Johnson's Education by Plays and Games (Ped. Sem., vol. iii); Johnson's An Educational Experiment (Ped. Sem., vol. vi); Croswell's Amusements of Worcester Children (Ped. Sem., vol. vi); Gulick's Psychological, Pedagogical, and Religious Aspects of Group Games (Ped. Sem., vol. vi) are valuable contributions to the literature of this subject.

ill-health and escape therefrom in the future. The man or woman who in early years has had no physical training, knows not where to turn when overtaken by difficulty; but the child trained in the gymnasium goes forth to meet the future, holding in his hands the keys to good health. If there is nothing more than this in the benefits of physical culture in our schools, it is much.

However, there is more, for the robust and well-developed child in the school is the marked exception. A capable expert, watching the dismissal of several hundred children from a school one day, remarked to me that there was scarcely a child in the whole number who did not reveal, to his practised eye, some condition of physical defect. Under our school of better conformity to hygienic laws in all its work there would certainly be less difficulties of this kind. Still the liabilities to physical weakness are so insistent that the well-equipped department, devoted to this one fundamental essential, must be a cardinal feature of every school. The importance of regular habits in exercise must be established by daily training. To make the exercises anything less than daily is to put the work on the same level of feeding by irregular meals. "In public health is public wealth."

But from the very start there should be present the watchful, competent eye that seeks out the children of malformation or physical weakness. These children need the removal of causes, and provision by special exercises calculated to make them strong. Every child should be examined; and a careful record should be kept of all weaknesses, past sicknesses, injuries, and

hereditary tendencies. Based on this record should be the prescription of exercises to make the pupils strong and to keep them strong. A child's life-book, giving his physical record from birth and from year to year, would be of incalculable benefit. Certain team exercises and class drills may be helpful, with exemption of exceptional pupils; but the basic element in the treatment should be individual. Miss Palmer's work, formerly at Pueblo, Colo., but now in the Oakland (Cal.) High School, is particularly noteworthy in this respect.

With a school plant so large as contemplated in these plans, and regardful of the frequency with which children of marked malformations are found among large numbers, but thereby generally deprived of school privileges, a department equipped with mechanical appliances for the correction of grievous physical difficulties should be possible. If the sanatoriums are able to accomplish such extraordinary corrections by scientific mechanical treatment, often in short time, then this important adjunct to the gymnasium is a perfectly legitimate one for the school of large size. In the days of Sparta, and also in Plato's ideal Republic, these children with malformations were put to death by the state; but the conscience of an enlightened people will recognise in the triumphs of modern skill a department of work, of this life-saving character, essentially within the province of the coming school.

In the plans for our quadrangle school for children of the play school, and also for those in the elementary school, there is provision in the central building for the within-doors play room necessary for unfavourable weather. In our central building in the intermediate

and high school quadrangles were located also the gymnasiums, with separate departments for the sexes in the high school. Connected with the gymnasium should be the school baths and the swimming pools, and also the mechanical room. The school bath at Brookline, Mass.,* costing $50,000, is the finest thing of the kind in the United States. The great swimming pool, surrounded with its individual baths of all kinds, each sex having its assigned days, is a revelation to all interested in the possibilities of this desirable adjunct of the school.

The director of the physical department should also have charge of the cleansing of the buildings, the analysis of air and water, the insistence on individual drinking-cups and individual towels, the prescription of food, the medical inspection of the schools, the destruction of all books exposed to contagion, the quarantining of special cases, the suggestions to the home concerning health questions, the separation and special treatment

* The Brookline baths consist of a large swimming tank for general purposes, a smaller tank in the instruction room, a number of rain baths of the Gegenstrom pattern, dressing rooms, director's rooms, waiting rooms, ladies' hair-dressing rooms, etc. The swimming tanks are lined with white glazed brick with floors of light adamantine mosaic. The main tank is 80 feet long and 26 feet wide, has an average depth of 4½ feet, and 42 surrounding dressing rooms. There is an abundance of light and sunshine. The smaller pool is 22 feet long and 10 feet wide, and has an average depth of 3½ feet, 6 large dressing rooms, and a rain bath. The water, constantly changing, is kept at a temperature of 78°, the temperature of the room being several degrees higher. The director is a graduate doctor, and is assisted by a competent lady instructor.

of defectives, the limitation of school exercises, and other questions pertaining to the children's health.

Concerning the treatment of the eye, is it altogether a wild speculation to say that, as evolution has given us the eye in its present shape and character in response

CAUTION.

Reader, your *eyesight* is worth more to you than any information you are likely to gain from this book, however valuable it may be. You are therefore *earnestly cautioned*—

1. To be sure that you have sufficient light, and that your position be such that you not only avoid the direct rays upon your eyes, but that you also avoid the angle of reflection. In writing, the light should be received over the left shoulder.

2. That you avoid a stooping position and a forward inclination of the head. Hold the book up. Sit erect also when you write.

3. That at brief intervals you rest the eyes by looking off and away from the book for a few moments.

And you are *further cautioned* to avoid as much as possible books and papers printed in small type, and especially such as are poorly printed; also to avoid straining or overtaxing the sight in any way.

You may need to be reminded of the great importance of thoroughly cleansing the eyes with soft, pure water both morning and evening.

to functional operations, there may be in proper exercises for the eye a possibility of training that may be

corrective of many of the defects so common in modern life, affecting shape of the ball and lens, muscles controlling adjustments, and perhaps even the sensitiveness of the retina?

Books for school use should be printed on paper of a slightly yellowish tint * and be free from gloss. The type should be round-faced and clear, and a profusion of italics avoided, the page narrow, and the ink a dead black. Every book should have pasted on the second page of the cover a caution similar to the one on page 189, suggested by Dr. Ward McLean.†

Nature Work.

Dr. C. F. Hodge's doctrine of human value in Nature Study excludes from the school room the stuffed specimens of bird and beast, which have done little but inoculate the child's mind against all love for animal life; the miserable and deadening processes of analysis and classification, which have dominated the whole field; and brings the child face to face with Nature, which he will love, because all life to him now is full of human interest.

Says John Burroughs: ‡ "I recently read a lecture on How a Naturalist is Trained, and I was forced to conclude that I was not and never could be a naturalist at all, that I know nothing of Nature . . . I have loved Nature and spent many of my days in the fields and

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* Cohn, Javal, Blasin, Kotelmann, and the Hygienic Congress of 1880 at Turin.

† Popular Science Monthly, vol. xiv, p. 85.

‡ The Outlook, February 4, 1899.

woods in as close intimacy with her varied forms of life as I could bring about, but a student of Nature in any strict scientific sense I have never been. What knowledge I possess of her creatures has come to me through contemplation and enjoyment, rather than through deliberate study of her."

With the same lofty view and noble purpose, Dr. Hodge clears away the dead inanities which have so long killed in the germ all childish interest in Nature study, and proceeds to construct a plan of procedure that is an inspiration in itself. "It is our present misfortune," says he,* "to be living under a most inadequate notion, a dead-book museum conception of science . . . Science is the unceasing struggle of the human mind after truth. Furthermore, this struggle is so inseparably linked with normal growth and vigor, and so full of the joy of human action, that the struggle is to be preferred above actual possession of the truth itself . . . What we need, then, in Nature study, as in all other subjects, is a quality of knowledge which shall be alive and set the child's face right toward the universe, and thus form the foundation for active, helpful living."

Let me describe something of this work as I have seen it in several visits to the Upsala School of Worcester, Mass.

The characteristic features of the Nature study work in this school, at least as far as I have seen it, are: 1. The inspiration of every child by the vitalizing

* Hodge's Foundations of Nature Study. Pedagogical Seminary, April, 1900.

conception that he too may add to the sum total of the world's happiness and knowledge by the growth of a plant far better than the world has ever seen. 2. In the domestication and protection of the wild birds, so that all life, even in the city, may be glad with the presence of the singing, companionable, and useful birds, which under proper management are really very easily tamed. 3. In the study of the pests which have made horticulture and, in some instances, even human happiness impossible; and their subjugation by simple methods, so that even a child may "have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth."

Here is a school filled with experimental plants, singing birds, aquaria with their varied life, vivaria with imprisoned pests, school gardens for experiments with all kinds of growing things; but, best of all, a school thoroughly organized for the protection of birds, frogs, toads, and other useful animals; for the destruction of pests; for zealous attempts to "make two blades of grass grow where one grew before" and to encourage all useful life to "be fruitful and multiply"; and for carrying into the homes plant culture, building of bird houses, and a love for Nature that are absolutely transforming in their suggestions to older persons, who under the influence of the school are witnesses to the old, old regeneration, "And a little child shall lead them." But in this school there is not a stuffed animal or dead form of any kind. Everything is life in all its beauty, activity, usefulness, and charm. Even the little children are taught the delights of feeding the

birds, and ways to make the wild birds come and eat out of the hand.

Each child is given seeds for experiments at his home, to see who can raise the best fruit trees, vegetables, and flowers. Almost every day there is opportunity for each one to tell the results of his work; and the whole story of the preparation of the ground, the planting of the seed, the degrees of sun and moisture, the appearance of the first shoot and its daily growth by inches, number of leaves, branches, and buds, and all the joyful successes and tearful pathetic tragedies, come out from the pure interest of the little original horticulturist and for the best guidance of others. No farmers' institute could listen to a more profitable discussion, full of cautions and suggestions, than at this school gathering where tradition and custom do not dwarf, at the very beginning, the best culture of plants. Then, at the close of the year, comes the exhibition day; and, as the parents and school friends gather in, each child brings from his home, for the awarding of premiums, the best products of his year's work. What an inspiration is this! What a suggestion for Nature study and for all the work of the school! This is education.

I was very glad to find that all this plant study is not confined to flowers, but that attention is given also to vegetables, fruit trees, and even the forest trees. Think of the inspiration to a child in actually growing a chestnut-tree or an oak. Peach-trees there were by the hundreds, some three years old.

Then, without are the school gardens. To grade four is assigned a long garden which, it is designed, shall contain every useful plant growing in Worcester

County. Every plant has its little name tablet, which the children study as they work in culture of the plants, and which is an endlessly enjoyable study even in recess time. Grade eight has the care of the lawn; grades five, six, and seven, their group beds devoted to the experimental culture of useful vegetables; and I am sure there is something for the little ones. The individual beds are at the home.

One little girl, ten years old, says, concerning her bachelor's-buttons: "My seeds were given me in March, and when I got home I went to the woods for some dirt. I came home and sifted my dirt. After I had sifted it, I planted my seeds. I patted the dirt with my hand and watered the seeds. I put it in the sun. In about two days my plant was up. In three days after it was six inches high. But now it is twenty inches high. It has nine buds on it. One bud is nearly out. I can see six more buds coming. I water my plants every day." Concerning the school garden she says: "I raked many stones out of our garden and brought rich black loam from the woods to put on it. We planted lady's slippers, violets, white violets, ferns, wild oats, Solomon's seals, pussy willows, celandines, lilies-of-the-valley, sunflowers, mustards, buttercups, columbines, jack-in-the-pulpit, bird's-foot, false Solomon's seal, cowslip, wild geraniums, dog's-tooth, money plants, mallow, catbriers, swamp pinks, and sweetbriers."

Another child writes: "We all got our peach seeds of Dr. Hodge. I planted mine in the same way I did my bachelor's-buttons. They came up very fast indeed. Now my tree is an inch high, and I am very happy. I hope it will bear a lot of fruit when it grows larger."

Then in the bird study; following the feeding and care of the birds, indicated for the primary children, the work continued in its development until in grades called five, six, seven, and eight the children were organized for the annual bird census and its related work. The district tributary to this school was divided into four census districts; and the children of each of these grades respectively were organized into a working force of census takers, each grade being assigned a quarter of the district. The location of every bird's nest was carefully indicated by a red star on the census map, which was hung on the wall of the school room. Bird houses, food, drink, and nest-building material were put out to encourage the immigration of new settlers, and the warlike, home-destroying English sparrows were killed off by systematic poisoning.

Then there are the bird clubs, called "Ten-to-one clubs," * organized "to use every means possible to increase the numbers of our native wild birds by providing them, when necessary, with food, water, shelter, and nesting places, by treating them with uniform kindness, and especially by protecting, in every way possible, their nests, eggs, and young." Hundreds of bird houses are mounted on trees, poles, and houses; food plants are cultivated; drinking and bathing basins are put out on posts; nest material is put conveniently near; and every child vies with the others in seeing how many birds he can coax to feed and bathe under his window or to nest in his houses. Woe also to the offender who violates the sacredness of a bird's home. One boy, a newcomer

* Hodge's Nature Study Leaflet. Our Common Birds.

in the school, was reported, tried, and convicted of having robbed a robin's nest, and, not only that, but of having boiled and eaten the eggs. A committee of five was appointed to wait on him, which they did with such effective remonstrance as to bring the boy's parents forthwith to the school. It was reported that in the year 1899 there were in the city of Worcester five thousand school children effectively organized in bird clubs. It is no wonder that Worcester has been visited by an incoming of birds that is a matter of common remark. The bird census at the Upsala school indicated an increase of thirty per cent in the bird nests in a single year.

The study of toads and frogs has also opened up a great field in the schools of Worcester. The revelation to Celia Thaxter * that a common toad has a great mission to perform in our horticulture; the statement made by Kirtland that a single toad may be worth $19.88 each season for the cutworms alone destroyed; the discovery that our water is greatly purified and much larva and insect life are destroyed by the tadpole and the frog; that our rose-bushes may be kept free from destroying-lice by the ladybugs; that our robins in the cherry-trees are probably after only the wormy fruit; that a young cedar bird will take a hundred flies at a single meal; that the hornets around the picnic table are really only after the flies; that the larva of elm beetles, caterpillars, and other destructive pests will be abundantly taken care of, if we will only permit the birds to help us; and that even the mosquito plague may

* Celia Thaxter's Island Garden.

be forestalled by a little kerosene on the waters of our ponds and insect-hatching places—what an interesting and profitable field for the education of children! It is no wonder the life of the common toad or frog is sacred in Worcester, and that children have been known to carry these pets a mile or more in order to have their help around the home.

But what is this—a beehive in the school? Yes, a hive just inside the window, with a little gauze-covered avenue leading in from outside. The raising of the padded sides discovers, through the glass sides, all the bees at work and all the processes of their community life. Here is the queen bee with her strong encircling body-guard repelling every approach; here are the workers, busy in storing and sealing up the precious caches of honey; here are the executors of law and order, driving out the drones and casting them into exile and starvation—a fit lesson for our own dealing with the tramp problem; and here, at the very entrance, stand two door-keepers, admitting no bee until he stops and, as the children say, gives the password—what a study for the school!

It was also pleasing to see that the pupils in this school were taught how to make their own aquaria. Given, a child, a few pieces of glass possibly discarded by the photographer, some quartered tin, a soldering iron, some aquarium cement, and a little direction, it does not take long before every child will have his own aquarium and its varied life of fish and plants for his endless study and amusement.

Then, in Nature study, there is the illimitable variety of exercises suggested by the education of the

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Port Richmond Branch,
12 Bennett St.

farm, and here given opportunity for contribution by the fact that the school is on a farm. President Hall's Boy Life on a Massachusetts Country Farm a Quarter of a Century Ago,* with all its seventy or more different grades and occupations—what a suggestion! The McDonogh School Farm † near Baltimore, the George Junior Republic ‡ in New York State, the Abbotsholme * in England, and Demolin's L'École des Roches || near Paris, are all living examples of this great natural field, which should be put under tribute to return the city children to their Eden Lost.

But what of all this Nature work and its value?

First, it has been the foundation of all healthful work in the development of man.

Second, it is perfectly in accord with Nature, so fruitful in educative results and so illimitable in its available material, that the amazing wonder is, why have the schools got so far away in their delving into graveyards and dead forms?

Third, the fundamental keynote of human interest relates it to practical values affecting the highest comfort, success, and happiness of man. Dr. Hodge says: "A pair of living birds' eggs, with proper care by the children of the country, could produce in ten years a pair of birds for every child in the land. . . . With a single pine seed, properly cared for by man,

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* Pedagogical Seminary, vol. i.

† An Educational Experiment. New York Regents' Bulletin No. 32.

‡ Croswell's George Junior Republic.

* The Abbotsholme.

‖ Demolin's Anglo-Saxon Superiority.

we may cover the continent in an incredibly short time with a forest of pines. . . . The bee, by cross fertilization, has given us all our varieties of fruits and flowers. . . . With available room properly planted we might easily have ten wild birds to one that we now have in our towns and even many of our cities. . . . No one has ever yet produced the best and most beautiful rose, or peach, or bird, or man, or anything else that the world is capable of yielding. By proper care we can not only have a world full of such birds as we have now, but of birds with sweeter song and more and more beautiful plumage; and in the presence of these infinite possibilities for good or for ill, we must, above all things, remember that human action tends to make the world a garden or a desert, a paradise of joy and beauty, or a vale of tears."

Fourth, there is high educative value in the inspiration involved in the discovery to the child that he also may have a great part in the evolution of a world of beauty, knowledge, and happiness. This is the "knowledge that is worth most." "With the flood of talk and writing we have had about enriching the course of study and all the complaints about crowding in too many subjects, it is certainly strange that we have heard so little about the proper quality of knowledge and the means to its attainment." (Hodge.)

Fifth, the transformation in the world's expectation of the child is another great possibility of this kind of Nature work. Remarks the same scientist: My own experience with children and that kind of Nature work which has some high purpose in it, which really presents to their minds something well worth doing, has

led me to repudiate as a libel on childhood the theory that attributes to him "native cruelty." These are the hasty conclusions of that desiccated breed of pedagogues who insist on setting before innocent children "asinine feasts of sow-thistles and brambles," grinds of minutiæ, technicalities and hard names, "abstractions of logic and metaphysics," ragged notions and babblements, while they expected worthy and delightful knowledge. My experience has been that children always take to knowledge really "worthy and delightful" which offers full scope to their passion for activity, like ducklings to water, like fledglings to the air. If they do not, let us look to the "native cruelty" of the school room, rather than cover our own stupidity with assumptions of "native cruelty of childhood."

This plan of Nature work has been outlined somewhat fully, and yet very inadequately, because of the great gap it is to fill in the school, and also because of its suggestiveness as to procedure in the conduct of other subjects.

Is it not unfortunate that so many of our school buildings, and the schools themselves, are so lacking in great natural artistic ideals and the teachers so prone to content themselves with the dry unnatural fields of books, when great opportunities are before them?

High-School Science.

It is to be hoped that this noble work in Nature study will also largely influence the science work of the high school; but it is desirable that students, in this period, should come in contact, by direct investigation, also with the elementary phenomena, forces, and laws of

the physiographic, physical, and chemical world. Prof. J. T. Draper's work in the high-school laboratories of Pueblo, Colo., Oakland, Cal., and Holyoke, Mass., is perhaps the most suggestive contribution in this interesting field. Laboratories equipped with very few pieces of large apparatus, but with much for the pupil's own individual work; little required to be done outside the laboratory or the laboratory hour, but with opportunity for work in the laboratory itself; the holding of the lecture and general exercise to their proper and very useful places, but with all work fundamentally individual; the discarding of the single text, and the facing of the pupil up against the greater field, with the abundant library even of college texts for his help; the progress of the individual at a pace best suited to his personal needs, with little reference to the class; the intrinsic worth of order and exactness in all methods of scientific approach; and the reliance on suggestion rather than servile performance under requirement —these are the fundamental characteristics of Professor Draper's interesting work. The work of the pupils is individual, and yet there are present a strength, an inspiration and a dignity in work always evident, where the pupil finds himself in association with a capable, original worker whom he loves and respects as his guide and friend. Much of the work of Professor Draper's pupils is directed by well-prepared sheets of suggestions, giving for each subject a few basic directions, a large number of references, but unlimited opportunity for personal discoveries. As far as is possible under college requirements, the greater value of full development of a few subjects over the

lesser advantages accruing from many, and particularly the pursuance of one branch of study for several years, is emphasized. Superior to everything else aimed at is the crowning delight which comes from personal discovery and accomplishment and the infinite worth of knowledge in that way gained.

Perhaps there is no better description of this kind of work than that contained in President Hall's Qualitative Analysis of Knowledge: *

"Some fact in science is discovered and a man casually reads about it or is told about it by a friend. He probably gains in this way a dim, far-away notion, and soon forgets all about it. Second, his friend takes him into his laboratory, sets up the apparatus and demonstrates the discovery before his eyes. From this he gets a much clearer knowledge. His friend next places the apparatus at his disposal and lets him try the experiment himself, and his knowledge takes on a still stronger quality. It might be difficult now for him to forget the circumstances. Suppose, finally, the man works out the problem for himself, devises, possibly makes, his own apparatus, works days and nights in meeting difficulties and in overcoming obstacles, until, at last, he has his result definite and clear, until he has himself added a new fact to the sum of human knowledge. The discovery, the knowledge, has now become a living part of himself, an inspiration and a satisfaction as long as he lives."

With this illustrative definition of knowledge it is really unimportant what branch of science or of the

* Pedagogical Seminary, April, 1900.

curriculum is the study in hand; the great desideratum is the discovery, the inspiration. This is another illustration of "what knowledge is of most worth." However, it is really desirable that the student in this period shall be placed in possession, for the sake of his later life and work, of the fundamental elements of the alphabets and of working tools that belong to work in the physical, chemical, and physiographic worlds.

Construction.

The admirable field which has been so well opened up by the kindergarten should still be occupied. The exercises in modelling, in designing, in synthesis, and in building, as typed in paper-folding and cutting, in clay, wax, and sand modelling, in mat weaving, and in block and other building, are exceedingly valuable in the early development of creative faculty. These same exercises are capable of development into much higher forms in the modelling of geometric forms and of geographic, plant and fruit reliefs,* in basket weaving, in paper cuttings representing life,† in architectural construction using larger blocks, and in the building of houses, etc. Sloyd early comes into use, but its character may well be transformed. The making of toys and playthings would open up an immense field of great interest and utility. The top, the whirligig, the windmill, the water dam, the water-wheel, the doll's

* Felix Adler's School, New York; and Connecticut State Normal School, New Britain, Conn.

† Leaflet for Primary Cutting. By Miss Harris, Supervisor of Primary Work, Newark, N. J.

dress, furniture, and playhouse, the animal pen, and the endless other things which boys and girls like, are all things of great educational value. Then, a little farther on, think of the puzzles, kites, bird-houses, aquaria, bats, stilts, sleds, wagons, sail-boats, pieces of apparatus, rustic bridges, traps, picture-frames, desks, shops, houses, and all the other creations which spring from children's brains. The kite also has great possibilities. At the Jacob Tome Institute there is a whole room full of kites of all sizes, designs, and purposes, suggested largely by the reading of the little pamphlet on kites sent out by the Department of Agriculture. Here were boys of ages eleven to fifteen, under the inspiring direction of Professor Aldrich, with a series of kites up in the air with more than a mile and a half of string. At Andover, Superintendent Johnson bought a finely rigged sail-boat and offered it as a reward to the boy who would make the best sail-boat. There was not a boat made by the competing boys that did not surpass the model premium. In the Upsala school of Worcester, Mass., a call from the teacher brought more than two hundred children of ages ten to fourteen, each carrying under the arm a bird-house of his or her construction, not counting the hundreds of other bird-houses already mounted on trees, poles, and buildings in the neighbourhood. Then on through the work of the high school are endless correlations of science and construction, in the making of levers, incline planes, air-pumps, magnets, batteries, steam-engines, induction coils, phonographs, telephones, telegraph apparatus, telescopes, and a perfectly bewildering array of other

things of delight to the young creator. What an anticipation and introduction to the study of technical science this would be!

Superintendent Vansickle, in his work at North Denver, made very effective use of the printing press. The nicety of adjustments in the composing stick, the endless variety in the combinations of type and in possible design, and, above all, the printing of a paper and the making of a book, make printing a constructive exercise of exceedingly great value. The Boys' Club at Holyoke, Mass., has found book-binding another most useful means of training. President Hall, in his article on A Country Farm a Quarter of a Century Ago, tells of seventy different trades and occupations, all exemplified on the farm and entering into the education of the boy at that time. The McDonogh Farm School, already referred to, near Baltimore, Md.; the Abbotsholme in England; the farm school in Wales for the training of the sons of noblemen—all illustrate important adjuncts to our school, made possible under our plan of centralization on a general school farm.

Then what an infinite range of possibilities there is in higher modelling. Proportionately as the school has entered this higher field, at Drexel, Felix Adler's, the Teachers' College, the New Britain Normal School, and other places, the still higher adaptability and usefulness of these exercises for educational purposes have been apparent. The school has yet much to learn from ancient Greece. As one stands in the Rookery at Cincinnati, or some other great pottery, and watches the marvellous transformations of the potter's clay in short time and in graceful forms under the manipulations of

the moulder's fingers, the question can not help arising, Why does not the school utilize this wonderful exercise for the development of creative faculty?

Now, this work in the kindergarten, in sloyd and manual training, in sewing and dressmaking, and in modelling must be essentially individual. Every exercise is filled with the utmost activity, the liveliest interest, and the most unlimited opportunity for each to arise to his best. To make it anything else than individual is to take the life out of all creative exercise. This, true in industrial education, is illustrative also of the same principle in regard to all other branches of school work. To arise to any great height, the soul must be free; and to be free it must be individual.

Drawing.

The drawing exercise, in all good schools, has been rapidly taking on an individual character. The method is largely that of the artist's studio. The pupils are either in groups, drawing the same things but from different points of view, or at work on entirely different things. The teacher passes from pupil to pupil, with here a glance, there a criticism or suggestion, but everywhere direction. It is not necessary that all details should be outlined or inspected. Indeed, it is said that the great art teacher, Frye, never criticises or inspects the work of his students at all; sufficient for them is the artist model. In our school the pupils, under suggestion, are led to do much themselves.

In contrast with this, how painfully distressing is the school where the drawing is all imitation, and where little appeals to the child to inspire him to originate

or to relate his work to personal pride! The child must be given opportunity to create; and creation is always individual.

The individual method in drawing, practised with such satisfactory results by many teachers, may be very suggestive with proper modification for the advantage of work in other departments.

The work of Henry T. Bailey, State Supervisor of Drawing in Massachusetts schools, has stood, more than for any other one thing, for the conservation of individuality in drawing. To him the field of the child's individuality is sacred, to be trodden on by no pedagogue's foot. Hence his rescue of the schools from the domination of books and exercises which dictate and call for servile imitation. The child must see through his own eyes, must give form and colour as to him the vision is. Imagination also plays its important part, and everywhere there is freedom and creation.

Penmanship.

Sooner or later the handwriting must tell the story of individuality. Therefore, in the school, it should early conserve individuality. Fortunately, the enormous transformations in the systems of writing since the first presentation, by President Hall in 1892,* of vertical script in this country, to its wide and almost universal introduction in schools, has made this much easier of accomplishment. There are now no hair lines. The child may write large or small as he may please, only the letters must be fairly propor-

* Proceedings of Department of Superintendents, 1892.

tioned. Less drill is now required to make a good writer; hence, the necessity for continued drill being removed, the writing earlier takes on individuality.

George Sand says: "The paper straight, the writing straight, the boy straight." Vertical writing is more quickly learned, easier on the eye, less exacting in position, fairly rapid, and more easily read.

But how shall we escape the necessity of drilling children in concert?

I once saw Prof. Chandler H. Peirce, in charge of the writing of five thousand children in the schools of Evansville, Ind., conduct school after school, of fifty or more pupils each, practically by the individual method. "The work was conducted on a basis of ten lines for every effort, the teacher giving credit if done right, and assigning ten more lines if done wrong, with proper individual criticism offered." Continues Professor Peirce: "The difference between the poorest writer of the B class and the best writer of the A class is the work of two or three years. How is it possible to give this wide range in capabilities any one thing which will satisfy and mark progress?" I saw Mr. Peirce, as he sat at the teacher's desk, in ten minutes receive fifty pupils, mark his criticisms, indicate his suggestions and assignments, and give inspiration to these little workers, who found in writing a most delightful exercise. As I watched him, it seemed to me this was the only natural thing to do. The day of "one, two, *three*," and of "left curve, left curve, right curve, straight line, *right curve*" in teaching writing is rapidly disappearing.

Mathematics.

The methods of the mathematical laboratory are very simple and natural. There is no assignment of lessons, the work being directed largely by suggestions given at the time the day's work is being done. On entering the laboratory (or the mathematical hour, if all work is done in a common room) the pupil then takes up the work of the day and begins where he left off yesterday. The teacher usually passes from desk to desk, encouraging, criticising, and suggesting at the direct point of personal need. Unembarrassed by the attention of others, the pupil discovers all his weakness to his teacher. Why should he not? Every point of the work is conducted solely for his benefit. Instead of preparing only a part of the work, or perhaps using help from others, sometimes imitating work on the blackboard, the pupil performs all the exercises, not selected ones, and presents entire results in the same thorough and satisfactory manner. The work to him takes on reality; there is not the slightest incentive to dishonesty; he has in hand an important piece of mathematical work; and the glow of conscious strength from personal performance, however limited, lifts him to a higher level of independence, vigor, and discovery.

Given freedom and opportunity for active choice, the differences in working ability become so great that it becomes impossible to hold together workers so vitalized by opportunity.* Either each subject must be pre-

* See tables showing differentiation of working abilities, Chapters II and VII.

sented with minimum opportunities, or the pupils must be given opportunity to scatter through the entire range of the subject. Their performance of work is individual; but no matter how widely scattered the workers may be in text performance, it always happens that there are enough pupils approximately together to give a group recitation at any time desired; only the group of to-day can not be the group of to-morrow. In like manner, there is always opportunity for class discussion on elements of common interest; but why should it be necessary to have the steps leading to such a general exercise all identical or simultaneous? Usually the individual work in mathematics follows, in the main, a book-text; but some teachers, particularly in the lower grades, prepare card series of problems, adapted to a wider range of choice. With pupils trained to more responsible work, there is little keeping of records excepting by the pupil himself. The work does not encourage false returns. Sometimes a query box, into which pupils put calls for the class presentation of problems of special interest or difficulty, is advantageous. It will be seen that the work possesses all the advantages of individual opportunity, group discussion and class explanation.

An interesting example of this kind of exercises was observed in Mrs. A. R. Hornbrook's* classroom at Evansville, Ind. Here comes a class of thirty, say in mathematics, perhaps arithmetic. The lesson has not been assigned the day before. Each pupil is trained to make his own advance assignment within certain general directions. Half of the class are at their desks and at

* See Mrs. Hornbrook's Laboratory Methods in Mathematics.

work on problems to be presented as opportunity arises, possibly to-morrow. The other half are at the blackboard, each one putting on his several solutions or demonstrations for inspection or criticism. The teacher pauses here and there, quizzing, testing, and suggesting. Occasionally she calls on all who are interested in Problem 29 to give attention to James's demonstration, and immediately a little group gathers round this demonstration, which touches their individual interest. Sometimes a capable pupil is asked to explain to a single classmate; and sometimes one is appointed as critic. Often the statement is heard, "All those who are ready for explanation" of a given topic "will please give attention to the class direction"; but, singular to remark, not once did I see any attempt to embarrass a pupil by calling on him to recite on a section on which he was unprepared. Here were individual advancement, group interchange, and class direction—a trinity most devoutly to be wished. Every child was happy in his work, each pursuing that which was individually best for him; all were loyal to the trust and opportunity given them, enthusiastic and ready, but without embarrassment, to expose all weakness; while the teacher was as free from burden, she said, as she would have been entertaining friends in her own parlour.

The beauty of individual work is that no two teachers conduct it alike. Sometimes the teacher proceeds very much as one would in a drawing lesson, passing from pupil to pupil, vitalizing each one by personal inspiration, suggestion, and kindly criticism while sitting by the pupil's side, and occasionally illustrating some common principle by class explanation.

Miss Laura R. Andrews's work in Pueblo, Colo., was very suggestive. Here the pupils worked in flexible groups, changing from day to day. The performance of work was entirely individual. Generally the teacher and pupil were sitting side by side, with help just at the point of present need. Sometimes a group of those approximately working at the same place gathered around a table for mutual help. Sometimes the attention of all was directed to certain basic principles of general interest, but the advancement was purely individual.

Language.

The language exercise must be related to the child's interest. Therefore, what a fruitful field is opened up by the Nature work already described! What a child does not know about his pet plants and pet animals, the things he has reared and fed, is scarcely worth knowing; and when he begins to tell with tongue or pen, how the story glows with life and warmth! This gives soul to all language work and makes the telling easy. Just in proportion as it reaches such heights it is individual; and the converse is just as true. Language work should be little taught as a thing in itself; or it will blight all Nature work and every subject it touches. It must rather be the outburst of the superabounding joy of other work. When the child is full of his subject the language work can not help being good. This is witnessed well in the budget of Christmas stories,* published by the school children of Holyoke,

* Holyoke School Children's Christmas Annual, 1897.

Mass. Here, strange to say, some of the finest stories came from the poorest and most illiterate children, particularly those living in the tenement houses. Language work to these children became real. Their vivid imaginations, enkindled by suggestion and let loose, teemed with creations of surprising beauty. They tasted the pure joy of authorship, and in their delightful work found expression in language surprising to all who knew them. What a world of children's interests are available for other revelations in the same line! How the imagination glows when given opportunity! And particularly is this the case with the child before he is checked by the tether of the school. Let the teacher beware of encroachment on the sacred domain of individuality by the formal written exercise; and particularly should we avoid over-criticism, which checks creation and causes the language exercise to lose its soul and lustre.

Reading.

This poverty-stricken primary exercise has no place in our play school. In the primary school it has been a dead exercise, because its premature introduction gives little play for activity. The child of eight years is ready for reading, and this makes its mastery short and easy. To the extent that reading, then or later, becomes a passive exercise, with many listlessly waiting, while others are away off in dreamland or wishing to be there, it becomes a questionable exercise. For this reason, excepting for certain purposes, the full class exercise is to be avoided. With departmental organization it would

be a good thing if the pupils, as individuals or in small numbers, could pass in turn to an adjoining room for drill in reading at the hands of a specialist, with exercises much longer than the brief line which a child usually reads, the other pupils, in the meantime, being occupied with other work. If this is inconvenient, then the teacher may well gather the children around her in smaller groups, vitalizing the exercise by closer help and by the children's more fruitful attention. This group method is utilized with great profit in the schools of Stockton, Cal., Jamestown, N. Y., Youngstown and Hamilton, Ohio, and many other places. It is not equal to the departmental plan where pupils may retire for special drill; because the most difficult thing for a teacher to do is to give a class in reading any living attention and at the same time direct the occupation work of the remainder of the school. However, it is much to be preferred to the general exercise which keeps a whole school or class passive while one pupil is reciting. The individual method, under the departmental teacher, is best; after this in value comes the group, to be succeeded by another group.

But there are times when the whole school may profitably have a general exercise. Sometimes it may well be in select reading for a quick comprehension and interpretation of thought, followed by "books down" and the telling of what has been gleaned. Sometimes an especially fine selection should be studied or read in concert, but not too often. Then, again, an exceedingly good exercise is representative reading, where a pupil-reader entertains the whole school with something

entirely new and interesting. There should also be much silent reading, which, in almost any form, is always individual.

Literature.

The place to teach literature is in a library where pupils are turned loose to read under sympathetic guidance and capable suggestion. With an unlimited accessibility of books why should children all study a given topic simultaneously? Undoubtedly a critical lecture or general suggestion may at times be given; but, in the main, pupils should be brought face to face with good books, in the atmosphere of the "Temple of Peace," as Gladstone was accustomed to call his library, and then be encouraged to read. A carefully prepared course of reading should be mapped out with considerable range for individual selection. Each pupil might very profitably fill out a blank form, giving a digest of the book read, its author's style, the plot, most effective passages, most worthy quotations, etc. Children love beautiful things, and will read them by preference, if suggestion is made in a helpful and sympathetic way. There is no objection to the concert drill often used in storing the memory with beautiful gems of sentiment. Indeed, it is a very profitable exercise; but there should be a careful avoidance of all the dry rot in method that forgets that a child is a child and that even an adult tires of trying to conform personal interest to that of some one else.

Concerning the applicability of the principle of individualism to the study of literature very little need be said; but much, it is hoped, will be suggested. With-

out individual opportunity certainly nothing would ever have been written, and the suggestions for others to write must come largely in the same way. The function of the school, then, is to furnish an abundance of material; suggested courses of reading of wide variety in fields; instructive lectures here and there on larger points of common interest or general usefulness; individual help in knowledge of how to handle keys, such as Poole's Index, and in acquaintance with the by-paths of literary activity; an abundance of opportunity for the pupil to make his own choice and of time to read; and liberal encouragement for himself to enter the original field of literary creation.

I would also again particularly add the desirability of the child's making a digest of his reading as he proceeds. The habits of literary men in authorship might be very profitably taught. Very few effective writers begin to write a book trusting to a gradual development of the theme as the work goes on. The most valuable writers are those who make notes on important points as they read. Each note is a finished production in itself, embodying either a quotation, a valuable reference, or the development of some thought suggested by the reading. These completed fragments are filed in a scrap index. Then, when the time comes for the presentation of a book, the writer spreads out his associated notes on the floor, takes an inventory of what he has, arranges his sundry fragments in proper order, fills in the connections, and the result is a capable mosaic representing the best thoughts of the man's best hours. Why is it not a good thing for the pupil early to learn thus to give system and value to his read-

ings? The digest of the completed book is a very excellent thing for the younger child. No more delightful exercise in literary training can be found than that in which the child stands before his interested classmates and thus produces orally the digest of an entire book.

It is particularly important that pupils should be trained how to use indexes and keys in the library. For this reason literature is best taught in a library. The customary rule to "avoid talking" is a pretty good thing for the teacher to read.

Capable direction, accessibility of books, and time to read are essential functions. The excellent work of John Cotton Dana,* now of the Springfield (Mass.) Library, is very suggestive. The literature work in the Dayton High School is also particularly good.

History.

Why should science be the only subject with capable equipment for its study? Our history is to be taught in its laboratory, equipped with reading and writing tables, historical library, maps, charts, globes, busts, pictures, relics, and *porte-lumière*. "The history of the world is the biography of great men" (Carlyle). Biography, then, should be the soul of history. Whenever a knowledge of the times is especially desirable, it should be gathered largely from collateral reading and the pictures of the novelists.

Miss Mary E. Wilder, of the Gloucester (Mass.)

* Dana's Library Primer. See also address before N. E. A., 1898.

High School, has published a little working manual, of seventy-four pages, on Laboratory Methods in English History which will be of great value to progressive teachers. In this she names 113 volumes that might constitute the working equipment of an historical laboratory, added to which are suggested 32 other volumes for additional help. It is plain to see that these lists might be indefinitely enlarged; but to show the feasibility of the plan with even a small equipment, Miss Wilder names ten volumes as a minimum working equipment.

For purpose of illustration let us take, say, as subject,

THE ENGLISH CONQUEST, 449 A. D.–1066 A. D.

The student is advised to read continuously at least one of the following:

Montgomery, 31–57; or Anderson, 28–69; or Towle, 11–57. For extended information, say, in the study of

EDWARD THE CONFESSOR,

the references are:

Allen, 170.
Armitage, 88.
Bright, i, 21–24.
Church, 320–323.
Dickens, 43–49.
Freeman, Short History of the Norman Conquest, 24–25.
Freeman, i, 354; ii, 3–11, 14, 18, 337–343.
Freeman, Old English History, 252, 253, 258, 262, 269, 270, 293, 296.
Gardiner, i, 86–89.

Green, English People, i, 103–106.
Green, Short History, 68–70.
Green, Conquest, 467, 468, 472, 473.
Hume, 61–66.
Jewett, 186–194.
Knight, i, 162, 167, 176.
Lappenburg, ii, 285, 291, 296, 300, 332.
Lingard, i, 277–285, 303–306.
Thierry, i, 124, 127.
Yonge, i, 26–29.

Miss Wilder says: "Note-books are necessary, and two are not too many—one for notes taken in class from the teacher or fellow pupils; the other for the student's own personal researches. . . . The pupil should be encouraged to consult two or more authorities on all topics, and to read continuously some history other than those used for reference; likewise to own at least one, the best he can afford. . . . Atlases should be in constant use, and progressive maps should be prepared by the pupil, subject to examination by the teacher from time to time. . . . Essays written on subjects connected with the study are helpful. This work may be varied by writing a review of some historical novel which has been read as a part of the prescribed course. . . . Historical novels, scrap-books for cuttings and pictures, the learning of spirited poems and ballads—all help to rouse the interest and enthusiasm." It is plain to see that this table of references is serviceable for little or much according to the student's interest, time, and purpose.

For wider illustration of the subject, a general knowledge of the times, and the clothing of characters

with reality, a generous list of collateral reading is suggested; for instance, in illustration of the

PLANTAGENETS:

Doyle's White Company; Edgar's Great Men and Great Deeds (Crusades); Froissart's Chronicles; Gillat's John Standish; Henty's Brothers in Arms, For the Temple, In Freedom's Cause, and St. George of England; James's Forest Days; Porter's Scottish Chiefs; Scott's Count Robert of Paris (1090); Betrothed (1187); Talisman (1193); Ivanhoe (1194); Castle Dangerous (1306); Yonge's Prince and Page, The Constable's Tower; Shakespeare's King John, Edward III, Richard II; Gray's The Band (1282); Scott's Lord of the Isles (1307); Halidon Hill (1333); Southey's Wat Tyler, Chevy Chase.

It is evident that even the young student is here initiated into the interesting field of historical research and early feels the glow which belongs to the true historian.

GEOGRAPHY.

In the Teachers' College I one day saw a very beautiful lesson in geography. The topic was Scotland; the method that of the story-teller. All the pupils had been encouraged to read in as wide as possible a manner; each vied with the others in the endeavour to have something of varied and particular interest to say. One pupil told of the geological formation and geographic position; another of its flora, the heath and heather. A third pupil, who had been to Scotland, ran an excursion to the mountains and pictured the beauty of the lochs and streams. Another told of Scotland's rela-

tion to the British Empire; and then came a symposium of historic incidents and of the minstrelsy of the border. One pupil recited a goodly section from the Lady of the Lake, telling of Roderick and Ellen and Douglas and Malcolm Græme. The stories of Bruce and Mary and Tam o' Shanter were not overlooked. The Cottar's Saturday Night also found recognition. Abundant pictures were at hand to illustrate many scenes in Scottish life; and the teacher had difficulty in gaining opportunity to make a few remarks herself. If some one had only been present to sing Bonnie Sweet Bessie and another to play the bag-pipe, the translation to Scotland would have been almost complete.

Why can not such an exercise as this be more utilized in the schools? What in the ordinary formal grind of geography can compare with this in vivid interest? Do we not deaden geographic interest by our unrelated facts, our conformity to routine, and our uniformitization? These pupils carried from this lesson a vivid picture of Scotland and a spontaneous desire to have something valuable for to-morrow's symposium. The fact that the procedure utilized individual gleanings in perhaps widely different fields detracted nothing from the value of the class exercise. Here, in a single lesson, geology, botany, history, economics, poetry, literature, travel, and language painting, all united to give unity and life to the geography lesson. If we could make our geography real by relating it to life and to personal interest, we should find our long procedure in the development of geographic concept entirely unnecessary. Would utilization of the methods of the Travellers' Clubs smack too little of the school?

French and German.

Our course of study places French in the elementary or primary school; German, with French continued, in the intermediate school; but with instruction by the mother-tongue method. There is no objection to some anticipation even in the play school; indeed, it is to be encouraged. It will readily be seen that all language by the mother-tongue method, in the very nature of things, even in English, must be largely individual.

Technical study and the use of books must characterize more and more the work in the high school. But here, with all the conversations and discoveries so much to be desired, there is no need of individual interest being blighted by uniformity. The fact is, there is no place where a person will learn a modern language so quickly as in the midst of surroundings where there is much to make thought vigorous, to keep interest lively, and to furnish higher ideals. Prof. Maro S. Brooks, at Holyoke, Mass., and Miss Alice G. Hurford, of Pueblo, Colo., in their high-school work, both reached rich results by a happy combination of individual study, group conversations, and class discussions. Their methods are capable of wide adaptability to the *personnel* of schools.

The method of Prof. Edmond B. de Beaumont, of Lausanne, Switzerland, and president of the Association Internationale de Philologie Pratique, is exceedingly interesting and illustrative. Here is a man working in eighty-two languages, many of which he speaks fluently. Professor Beaumont believes that language is a great ocean, into which flows an infinite diversity

of streams. The language of each soul must be individual—must be its own. The address is so personal, the words of the foreign and one's native tongues are intermingled so adroitly, the meaning of each new word is so transparent, and tongue and pen work so constantly and perfectly together, that the learner comes out from the lesson all afire with love for his new work, respect for the teacher, and with ear tingling and tongue ready to express words and phrases now a part of himself. Master and pupil talk in the new language from the very first moment. A hundred new words are given the first day, and almost as many every day. These are recorded, as they occur, in a vocabulary book, and phrases and sentences in a phraseology book; both always in pencil. Almost immediately the learner begins in ink a book of his own natural style. He must write spontaneously and continuously, on any subject or without subject, words, phrases, sentences—anything; but he must write, write, write. Errors are expected, for if one waited until he could write faultlessly, he would never write at all. If the right word in French or German does not come at once, a word from English, or any language, should be filled in—anything to keep writing. One page of this natural style should be written each day. This, then, at convenient time, is to be submitted to the teacher or some competent person, who will underscore in red each complete sentence of good language; the phrase, word, and letter errors in blue; while the sentences without errors, but yet not good phrase, are not marked at all. At some later time, not soon, the learner should try again the thought expressed in the sentences contain-

ing errors. The words and phrases underscored in red are the pupil's own and these he must immediately begin to teach to some one—companion, child, servant, or stranger.

At the same time the learner is encouraged to talk alone, to talk to himself, and continue to talk, sense or nonsense, but to talk in the closed room, in the street, on the ramble, or anywhere alone. Every available opportunity for conversation must be utilized; but nothing can take the place of writing one's own natural style and of talking alone. Then, each day five red words are to be entered in a word index—only five; never more—and with the utmost care, for each word is a pearl to be fondled, caressed, strung, and treasured. Five words each day will make 1,800 in a year. Each day also the recognised words of a single page in the dictionary are to be marked. These are blue words. The number of words so marked is indicated, with date, at the bottom of the page. The learner now meets three kinds of words—red words, or those made his own; blue words, recognised, but not perfectly at command in natural style; and C words, belonging to the great ocean to be studied; and gradually the C words become B words and the B words A words. Now and then, at first frequently, later on perhaps once a year, the learner takes an inventory of his red words as found in his word index and of his blue words, already marked in his dictionary; for these words are his precious wealth, his money to be counted and treasured as a miser would his gold. Each week a new verb is to be written out in full; and, I think I hear this successful linguist say, each year a new language should be undertaken. The grammar is

used largely as a reference book, the principal thing being the learner's own natural style. As the study advances, gem phrases from standard authors are to be gleaned and entered in a book; and thus the work glows and grows, so that the learner, talking from the very start, encouraged to go on regardless of errors, but to talk and write, write and talk, soon gains a mastery of words that is truly surprising. This is, in substance, the method used in what Professor Beaumont facetiously calls his "Salvation Army for Modern Languages." * The writer, in study of the method, spent two profitable months with this master of languages, and therefore knows something of the method's value. Its great characteristics are naturalness, system, sound pedagogy, enthusiasm, and results. With the method in hand, the learner, alone or in school, may fearlessly enter on the acquisition of any language.

Latin and Greek.

One of the pioneer individualists in public-school work was Miss Ida Brock Haslup, for six years principal of the central High School of Pueblo, Colo., in which she also taught much of the Latin and Greek. More than one hundred pupils in their Latin and Greek were under her teaching each day. At times of convenience to their other departments of work, the pupils for their Latin work came to this room. Each one thus spent daily one hour by assignment, but the hour was used also for other studies, chosen by the pupils and apportioned the same amount of time. This appropriated four out of the five hours of the session, one of

* Beaumont's New Method of Vocabularization.

the four hours being spent in the gymnasium or industrial shops. This left one free hour, which, in the cases of beginning pupils, was assigned; but in all other cases was left free for application, as the pupil saw best, at the place of interest or special need. The pupils thus were allowed much freedom in moving from room to room. There was no class study or recitation to be interrupted.

The table showing the difference in the working abilities of twenty pupils working in Latin (see page 29) will indicate something of the difference of working places. There was no required preparation of lessons to be done at home. No groups of pupils could be seen around the entrance of the building in the morning, or on the way to the school, with one bright pupil reading over the lesson to two or three others. The books were in the Latin laboratory and the work did not begin until the pupil entered there. One study's time was not mortgaged by another. Each stood by itself, excepting as correlation was desirable.

With this freedom in placing of time, there were no conflicts in programmes; a hundred students could prepare for one hundred different colleges, or demands of life, as well as for one. Certainly, this gathered into the room pupils of widely different advancements; but why not, in Latin or in Greek? The same class sometimes had a large number of pupils scattered widely through Cæsar, and frequently there were present certain ones in Cicero and Virgil, or in beginning Latin; but, in general, the class of to-day contained those of approximately the same sectional advancement. This is the natural consequence of community of interests.

The teacher passed from pupil to pupil, sat in the

same seat with him, and then and there directed his study, gave him personal suggestions, heard him recite, and otherwise tested the soundness of his work. This is the soul of teaching. Or sometimes the pupil came to the teacher's desk for special help. The marked thing was the approachableness and helpfulness of the teacher. Or frequently, as common difficulties or needs appeared, a group of five or six, working approximately on the same ground, would be called around a conference table for general recitation. And sometimes things of basic interest would be presented to all in the room who might find attention profitable. At no time were several pupils passively waiting while another recited. The whole work was active, enjoyable, and full of personal victory, satisfaction, and inspiration. During its progress the pupils were allowed the utmost liberty in taking care of themselves in the room. They could speak to each other, sit or stand, change seats at pleasure, go to reference library or conference table, call and conduct their own seminars, go to an adjoining room for more secluded study or companionable help, or otherwise look after themselves. The teacher was their honoured associate, educator, and friend.

When the end of the hour came for general changes, or earlier if present work rendered it best, the pupils in leaving the laboratory left also their Latin or Greek work, until they might return the next day or later in the same day. There was no assignment of work by the teacher.*

* An article by the writer, on Individual Teaching, in the Educational Review, February, 1894, gives fuller description of Miss Haslup's work.

"I would like to ask," says some earnest high-school principal, "concerning the quantity of work thus accomplished by the pupils in Latin under this method and in the limited hours given to Latin study. President Eliot says * that in the Cambridge Latin School (six years) 2,820 lessons are given to languages as compared with 1,070 lessons given to all other subjects; in the Ann Arbor High School (in seven courses taken together) 2,746 lessons are given to languages as compared with 4,184 lessons given to all other subjects; in the Lawrenceville school 2,033 lessons are given to languages as compared with 1,917 lessons given to all other subjects. Now, it is a well-recognised fact that the study requiring the most of the pupil's time has been Latin. It is this which usually works the pupil so many hours out of school. How in the world are you going to accomplish all the Latin study in your limited time? What is to become of our college preparation?"

The sufficient reply to all this is that it has been done. By reference to the table showing results in the study of Latin (see table entitled Difference in Working Abilities as Shown in the Study of Latin, presented on page 29), it will be seen that the pupils represented in that class lost nothing by the method of their study. The heavy vertical line in the table at the end of Book I (54 chapters) represents the work which would have been accomplished by these pupils in the first half year of Cæsar study, if in this school they had proceeded by their former class method. How much have these pupils lost?

* Eliot's Wherein has Popular Education Failed?

L'École des Roches, a new school founded somewhat on the general plan of the Abbotsholme and just opened in Paris, presents some very suggestive thoughts concerning the teaching of Latin and Greek. Says Demolins,* the founder of L'École des Roches: "The little child at three years of age understands his mother tongue fairly well, and at four can speak it. This would be true no matter what his mother tongue might be—French, German, English, Latin, or Greek. But a pupil passes into our higher grades and spends several years in studying, say Latin; but at the end of that time he can not be said to know much of Latin; and he may go through college but yet can not speak it. What makes the difference in results?" asks Demolins; and then replies, "It is because in our higher education we do not use the mother-tongue method. Therefore," says Demolins, "we must return to the mother-tongue method."

The plan by which this is done in the L'École des Roches is certainly worth very careful consideration. The beginning is not with grammar nor the study of forms. The pupil is given many books to read instead of a single text, no matter if he does not get much from each. His beginning texts have the Latin on one page and the translation on the other. From this the pupil is expected to get some impression of what the Latin page represents, very much as one reads a picture. He then covers the translation and tells what he can of the interpretation of the Latin page, be it little or

* Demolins' Anglo-Saxon Superiority (French and English editions). Also T. R. Croswell's L'École des Roches, in Pedagogical Seminary, December, 1900. Also Dr. Cecil Reddie's The Abbotsholme.

much. Thus he reads book after book, gaining more and more from each as he proceeds, like any child in the study of Nature. His entire surroundings are Latin—the equipment of the room, the conversation, the illustrations, and the reproductions of Roman life. During this hour he hears nothing but Latin, frames his simple speech in Latin, and breathes the atmosphere of Latin. The walls of the room are covered with charts, carrying, in large letters, the declensions, conjugations, and elementary vocabularies. As the pupil advances and knows not a word, he infers its meaning from the context or glances at the wall for his help. Instead of first placing his finger on the text-word, then turning back to the glossary to find his word, then back again to the context because he has forgotten the exact form of the word, then again to the vocabulary, and so on until the word is found, then back and forth once or twice more because there are several synonyms, and he needs to decide which one will fit—instead of all this circum-meandering, the student glances at his chart on the wall and immediately finds his help in elementary work. Then as the work progresses to another stage, he places before him on his working desk a triple-folder chart card, which surrounds his work with three printed pages carrying the more advanced inflexions, vocabularies, and grammatical rules; and from these, by quick reference, he gets his needed help. The plan is full of attempt at the mother-tongue method, of short-cuts, and of enrichment by bringing the child into a wealth of culture thoughts, in which we may find "ideals of life and visions of beauty which can never grow old" (Hodge). Do we not make a

mistake in our long-continued confinement of the child to the dry husks of grammatical forms and to the single text which, ever so fine, can not compare with the wealth of the contributions of many master minds. Many may think the method of Demolins, by which he says he has already taught his own children and others, as fanciful; but still the work contains much that is suggestive. The educational world will watch the results at L'École des Roches, and the application of the same methods elsewhere, with much interest.

Music.

Certainly music is a school exercise requiring far different procedure from any other subject. It needs abundant concert exercise and should have it; but it must rely on developed individual interest. To whatever extent the general music exercise gives opportunity for interested, enjoyable, and individual activity, to that extent such general exercise has high utility; but the moment it bases its work on requirement and fails to give this interested activity to each and every pupil, just then and to that extent it fails to accomplish its mission as a legitimate school exercise. There are heights in musical training entirely within the province of the school which have never yet been reached by the school. It is altogether probable that musical composition could be more easily taught than any other form of language expression, and the school should bring to every child the uplift which comes from general musical training, but it should not limit its work to this. Wherever there are special endowments, here, as in

other departments, the school should give encouragement and opportunity.

The centralization of schools, as contemplated in our plan, gives large opportunity for this work. It gives to the department the adequate equipment of musical instruments, inspiring pictures, room of special focus, and air of proper temperature and freedom from impurities. It places the music work in the hands of the expert specialist and his well-selected assistants. Director Charles S. Cornell, in his Pueblo and Holyoke work, presented many suggestive things for consideration in this particular. Two hundred or more pupils, of fairly parallel grades, came to the music room at a single time. This gave the inspiration which comes from the blending of many voices in song. It also made it possible to segregate out of this number those who needed special attention, who thus were able at the same hour to gather with great profit in another room, where one or more of the released teachers could help them. It was surprising how soon these children could be helped over the difficult places and returned to the general concert room. It gave opportunity for other occupation of some during voice changes and other critical times. Musical societies and orchestras were organized, musical libraries and festivals established, individual attention given, and much was done to encourage special interest. Artists of rare excellence were secured, chamber concerts were given, and many things done to bring the children in contact with the best in classic music and literature. As Dr. Hodge well says, "The fundamental human interest in musical education lies in developing in the soul music which shall keep it white, make it unfit for 'treasons, strata-

gems, and spoils,' and put songs from beginning to end in the heart."

The plan of interpretative recitals in the Springfield (Mass.) High School, designed entirely for pupils individually interested, is also a very suggestive movement.

The special musical instruction, which some pupils must take of tuition instructors, should be federated with the school work. The school should furnish place and hour and pass approval on such instruction. In this way much could be done to rescue the pupil from the iron clutch of a practice which, in its ignorance, too often spoils a child in order to make a very poor musician.*

Business Practice.

The past few years have brought a great change from the older uniform method of teaching book-keeping. Twenty years ago the high school of West Liberty, Ohio, conducted some most delightful exercises, wherein the individual student was the unit, but with all workers organized into an interrelated and dependent working business community. The same procedure has found expression in the leading business colleges, and from there has worked its way into high schools more or less everywhere. Typewriting is essentially individual, and so also is stenography.

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* In the schools of Weimar, Germany, the writer found most excellent provision of this kind. In the Girls' High School were three rooms, one on each floor, containing pianos and other equipment for instruction in instrumental music. Here came outside instructors, under approval of the school. The school programme was protected, and the pupils lost little time, and had their music lessons and practice under pedagogic supervision.

Domestic Science.

Cooking and sewing, now much taught in schools, are so individual in their operations and progressions as to require no special comment. Indeed, industrial science, in its many departments, has contributed not a little to the better conduct of work in the other subjects of the school.

Now, all these studies of the school have been illustrated here, not to present details, which certainly must endlessly vary with the *personnel* of schools, but to show the applicability of individualism, with proper modifications and adaptations, to every department of school work. To be true to the interests of the individual, an exercise does not actually need to isolate the child. Any exercise—the single, the group, or the class—is essentially individual when it fits the personal needs of each and every pupil, and gives him constant opportunity for activity and unlimited progression.

What is the place of books in such a scheme of education? Are they to be discarded?

Yes, and no. As Emerson says, "Books are the best things well used; abused, among the worst." A book should never be permitted to obscure the vision of Nature. It has its place, but not in the early education of the child, and only its own place in the later stages of the work. A bookish man is an impractical man; he has never been in touch with life. It is quite probable that the school has too much run to books; and in the making of books much trash has been placed before the children. Says John Burroughs, for instance, concerning Nature study, which is fairly representative

of the rest: "Of the books upon Nature study that are now issuing from the press to meet this fancied want of the schools, very few of them, according to my way of thinking, are worth the paper they are written upon. They are dead, dead, and neither excite curiosity nor stimulate observation."

On the other hand, "a good book is the precious life-blood of a master spirit, embalmed and treasured up on purpose to a life beyond life." Such books have their places in the school. The school should be full of them: not fifty copies of a single rehash, but fifty books and many more of as many different kinds. The methods here presented lead the pupil to entire things and direct him to master works of recognised authority. He is early introduced to the larger texts, and is taught to use them as far as they are to him serviceable. When he leaves school he realizes he has a mere introduction to the subject, that the vast fields and treasure houses are beyond him; but he has been given the keys to future research. As a rule, one of the most helpless men in the world is the college graduate turned loose in a library to find something, he knows not where. On the other hand, the student who knows how to handle himself in quest of information when he wants it, is the educated man.

Recognising the value of individual work as has been described, how does the time question work out? If you have forty pupils in a class, and only forty minutes for the recitation, and the teacher takes one at a time, it is evident she can give each pupil only one minute of time. How can anything be done with that limited time?

This is the old, old question that never arises in the experience of the individualistic teacher, but only from looking at things in the old, old way. In the first place, much can be done in even a minute of time properly utilized. Second, no teacher ever attempts isolation as implied. Third, it is not so much a question of the teacher's division of time as the pupil's. It is very apparent, if the period is forty minutes, as implied in the question, that each pupil gets the full forty minutes instead of wasting thirty-five passively waiting while the others are reciting. He gets all the time instead of only a part of it. Fourth, in addition to this the pupil gains time by all his preparation, recitation, and examination being merged largely into one laboratory exercise, so that the period may thus double, if necessary, the usual time he gets from the teacher. Fifth, the question arises also from a failure to comprehend that the teacher who has been merely a hearer of lessons is now transformed into a director whose work is to inspire others, to touch the work at general points only, and to keep it on the right track. The work in discovery is done by the pupil. The fact is, there is no teacher who has so much spare time for her own original work as the one who is thus surrounded by a score of busy workers whose operations she is merely directing.

How about the number of pupils to the teacher? Will not this method demand that the number should be less?

The number should be less by any method. It is probable the individualist teacher can handle as large numbers as the teacher of the class method; only in the

former case the vitalized activities make deficiencies apparent, while under the passive practices of the class method no account is usually taken of the time wasted in dormancy and dreaming. As President Eliot has well said, "The young woman who stands before fifty-six children attempting to give each one that which is best for his needs, is attempting what no mortal can do." Half that number is sufficient. Our school is planned for approximately twenty-four children to the teacher, varying with subjects. However, this is entirely a question of the teacher as a general. I have known teachers who could direct the individual operations of a hundred children all at one time, and do it as well as other fair teachers might direct ten.

How does this method affect the quantity and the quality of the work? If you shorten the time by cutting off outside preparation and by confining all endeavour to the laboratory, can so much be done?

We must not fail to recognise the superability of the pupil who comes to his work with the endowment of better health. Such a pupil can accomplish more and better work in short time than his less favoured friend who mortgages his strength by abnormal hours of study and by worry over competitive results. It has been satisfactorily proven in the experience of hundreds of schools that the children who, under the stress of limited accommodations, come for a half-day's session make their graded advancements as well as others, providing theirs is the morning session. It is not quantity which educates, but healthy tension never protracted beyond the normal point. As far as quantity is concerned, the pupil who is given opportunity for vigorous

advancement accomplishes far more. The individual school can work with less time element and yet short-circuit the usual curriculum. It is true there are a few pupils who apparently do not accomplish as much as the usual class would; but these pupils get well what they get, remain in school, and returning at the beginning of another year, take up the work just where they individually left it. There are no non-promotions and no dead repetitions of work. As to quality, each pupil does all his work, and not fragments assigned to him. There is, therefore, little opportunity for rotten work. Based on this higher quality of work is the opportunity for greater working quantity.

What, then, is the test of advancement?

Simply this—the evidence of faithful endeavour and the satisfactory completion of each piece of work before the pupil passes on to a succeeding piece.

With all individuals travelling pretty much as they please, with minimum and extension courses of study, how can pupils ever be brought together again for entrance to any other school, or to any common classification whatever?

That is purely a question of the superintendent—of the director-general; but the plan makes supervision scientific and interesting. Certainly it is much easier to run all trains by a fixed schedule; but with trains one year apart there is apt to be a good deal of time lost between times by many who would like to travel.

The presentation so far has said very little about vacations. Would your schools remain open the entire year?

No; there are other things besides the school which

belong to the life of the child. The first term should begin about the usual time in the fall and run fourteen weeks. A vacation of four weeks, beginning two weeks before Christmas, should then be given for enjoyment of the home, visiting, and holiday festivities. The second term, beginning two weeks after Christmas, should continue for twelve to fourteen weeks, to be followed by four weeks more of vacation. This vacation should be variable in beginning, as proposed, but in time should comprehend Easter and the usual spring confirmations. It is the adolescent season of the year. Spring fever, with all it suggests, is a very plain physical intimation that work should be lightened at this time of the year. The annual music festival, which every community should have, might well come during this vacation. The spring term should contain ten weeks, or only eight if the middle term has been prolonged beyond twelve weeks. Then should come the summer vacation of eight weeks, with generous encouragement for camping, life at the seashore or in the country, and for travel. During the summer months the school farm, in part at least, should be opened for the use of many children who can not leave the city, and who might find advantage in the more healthful occupations of the larger play and garden school.*

* "The observations of Malling-Hansen on Danish children from nine to fifteen years of age show that by far the most rapid increase in stature was in the third of the year between the middle of April and the middle of August, while the third of the year between the middle of August and the middle of December was the one in which they gained nine elevenths of their annual increases in weight." (Donaldson, p. 88.)

CHAPTER X.

APPLICABILITY TO DIFFERENT GRADES OF INSTRUCTION.

THE essential principles of scientific instruction are the same for all stages of education. Certainly there must be adaptation of methods for the best conservation of these principles in different schools; but, nevertheless, "the child is the father of the man," and the man is little more than the better-educated child. Choice, self-government, true motive, habits of enjoyable industry, exercise of creative faculty, self-activity, opportunity for individual progress, the relation of work to life purpose, the pleasures of original discovery and unlimited variations—these are the essential elements in education, and their functions pertain just as much to the normal development of a child as of the man.

THE KINDERGARTEN.

The philosophy of Froebel is built fundamentally on the preciousness of individuality. Here in the kindergarten may be seen individual freedom, initiative, opportunity, and conservation, and their perfect compatibility with sociologistic relations. Choice, spontaneity, self-activity, and well-directed but unrestrained creation are fundamental factors in the kindergarten. In its operations the kindergarten reaches upward, over

a vast gap in the intervening school, and clasps hands with the university in effective conservation of the individual. Undoubtedly, the kindergarten must face the just demands for a more philosophic application of great essential principles, and must zealously repel the growing tendency to uniformitize its methods, and as well save itself from incompetence and misconception; but its work, even under unfavourable conditions, has been so far above that of the succeeding grades that it is deserving of great credit. Indeed, it has been suggestive to the whole field of elementary education.

The Primary School.

Pestalozzi taught that "the individuality of the child is sacred" and that "the child wishes nothing to intervene between Nature and himself. . . . Man, it is within yourself, it is in the inner sense of your power, that resides Nature's instrument for your development." Here came the first great farm school, where books were excluded and the children brought face to face with Nature. "We ought to read nothing," said Pestalozzi; "we ought to discover everything."

Superintendent W. F. Bliss, of Colton, Cal., has been remarkably successful in the application of the principles of individualism to the primary grades, even in the work usually required in such schools. The cut-and-dried programme, usually posted on the door or wall, has no place in this school. The periods are longer than in most schools; but there is no danger of over-tension, because the school is filled with life and spontaneity. There is a busy hum and bustle that reminds one of the beehive. The teacher is here and there, meet-

ing each one at the point of his difficulty, grouping together several for a class presentation, giving a key to interest and recovery to some lost pupil, directing the active energies of a whole room of busy workers, but gaining much for herself from the children's discoveries. Other schools are grasping hopelessly at relief from the *ennui* arising from the programme, already chopped into small fragments to bring relief by frequent change of exercises; but here is a school which does not hesitate to spend the larger part of an entire session on a single exercise, if found desirable, without fear of overtension, because the work is largely related to play. Says Superintendent Bliss: "A mental wave, charged with a given subject, re-enforced by the activity on every side, was palpitating through the room. The psychological effect of this flow of concentrated energy seems to be worthy of consideration." "What," exclaims Froebel, "if we could give the child that which is called education through his voluntary activities and have him always eager as he is at play!" Well, why not do it?

A regular instructor in the model department of the State Normal School at Los Angeles, Cal., where she had charge of the pupils of the second grade (approximately seven years of age), writes: "After an eleven weeks' test I stood amazed before the facts that confronted me. Among my brighter, more independent pupils the power developed, the solid healthy progress made in that time, was something that seemed impossible in the light of past experience. Children that I had previously kept down to ten or twelve words, were now learning from twenty to thirty words a day, and were building up for

themselves, from outside sources, vocabularies that on an average reached fifty words, and often, in the cases of the brightest pupils, amounted to over a hundred. . . . But the feature that ennobles the work and gives it right to consideration over all other methods of teaching is its recognition of the slow pupil, its holding of his rights as sacred as any other's. . . . With my own little slow ones I saw one after another, after a short time of quiet study apart with his teacher, begin to advance from the point where he had been master of his work. They did not go hesitatingly into the new lessons. Young as some of them were, they yet understood what they were working for. They grasped the reality of something definitely accomplished from day to day and gained confidence. Then, as I watched them push ahead under this new inspiration, a question forced itself upon me and would not be overlooked: What right have we, teachers or parents, to allow our children to begin their school life under the stigma of stupid or dullard until after every opportunity has been used to develop their best powers? But that development can only come when the child is taken at his own level, not an arbitrary line placed by twelve, fifteen, or twenty others representing a wide range of mental and physical capacities. It is a question of *fair play.*"

Intermediate School.

Another teacher, in her work at Pueblo, Colo., and Pasadena, Cal., has attracted great attention by her successful application of individual conservation to the intermediate grades. There is apparently no attempt at government, and yet the best of government prevails. If

to these children there is any happy place in the world, it is their school room. Here is association with a teacher whose heart is full of sunshine and warmth. Every pupil has opportunity to do all he can do well, and is aglow with the spirit of his work. The teacher does not seem to be busy; but yet at the same time she has the knack of being just at the right place at the right time, of saying the word most helpful at any given point in the individual's work. There is no noisy instruction and there appears to be little teaching; but there is an immense amount of quiet, persistent work resulting from the energies of nearly threescore vitalized children being skilfully turned on accomplishment which each one feels to be his own. There are no dead points in this school; but, on the other hand, the guiding hand is so gentle yet skilful that its presence is scarcely felt. This is high art in teaching.

The intermediate school, as has already been shown, is the place where the child should receive much drill in fundamental elements and processes, which are largely necessary to his capable work in subsequent schools. It is very possible that many things here, on which individual initiative and opportunity are not dependent, can best be presented in class exercises. If this is the case, the pupil should have just that kind of occasional drill, just as they should in any earlier or later subject of study; but the confinement of a child to class drill for a larger part of the time would be unfortunate indeed.

Many teachers prepare a large amount of occupation work, involving an immense range of individual

exercises. It is very interesting to note how skilfully this is done in a school in Worcester, and also how effective the work is in directing the active energies of pupils of widely different capabilities. The typewriter and the mimeograph have an important rôle to play in the newer school. Indeed, the school of the future will also be something of a printing establishment.

There is much in the school of Pestalozzi that applies to other fields of elementary education; but perhaps reference to it may best be made here.

Says Vulliemin, concerning Pestalozzi's work: "Instruction was addressed to the intelligence rather than to the memory. Attempt, said Pestalozzi to his colleagues, to *develop* the child, and not to train him as one trains a dog. . . . Language was taught us by the aid of sense-perception; we learned to see correctly, and through this very process to form for ourselves a correct idea of the relations of things. What we had conceived clearly we had no difficulty in expressing clearly. . . . The first elements of geography were taught us on the spot. . . . Then we reproduced in relief with clay the valley of which we had made a study. . . . We were made to invent geometry by having marked out for us the end to reach, and by being put on the route. The same course was followed in arithmetic; our computations were made in the head, and *viva voce*, without the aid of paper."

The Grammar School.

In the city of Los Angeles individual teaching, involving the work of fifteen thousand pupils, reached some exceedingly interesting results, although the work

was in operation under abnormally unfavourable opportunities for its direction, and was terminated abruptly by a foreign decree which returned, at the end of fourteen weeks, all work to the class method. Among many other very successful teachers in the conduct of the work, I recall one whose work was highly competent, and who reached some surprisingly good results. In response to a *questionnaire* Miss Joy reported as follows (abbreviated) concerning the work of thirty eighth-grade pupils under her charge:

"*Pupil 1*—Completed the course in fourteen weeks, usually requiring twenty weeks. Did a great deal of supplementary work in history and mathematics. Gained much mental strength in this period.

"*Pupil 2*—While carrying on the other work very satisfactorily, made excellent progress in mathematics doing work usually requiring twenty-five weeks.

"*Pupil 3*—Came into class several weeks after term had commenced. Though handicapped, made special advancement, particularly in language and history. In language, covered well in ten weeks work ordinarily requiring eighteen weeks.

"*Pupils 4–9*—These six pupils made special advancement in history, the system enabling them to carry on researches to a far greater extent than would have been possible otherwise.

"*Pupil 10*—Made special advancement in mathematics and history. Had the system been followed until the end of the term, he would have finished the course in five weeks less than time ordinarily taken.

"*Pupil 11*—Would have completed the term's work in four weeks less than the ordinary time. His work

was more thoroughly done than would have been possible in class work.

"*Pupils 12–28*—My entire B class (17 in number), with the exception of two pupils, did history work in six weeks that by the class method has always taken eight weeks. Their work was more satisfactory and their knowledge far more extended than would have been possible had the class plan been the only one followed.

"*Pupil 29*—Worked along faithfully and contentedly while the individual method was followed; but upon returning to the class method he soon became discouraged, in spite of my efforts to encourage him. He was slow in mathematics and language and sensitive to a great degree. He is older than his classmates, and I fear he will not return to school. The individual method is by all means the one for his kind.

"*Pupil 30*—Worked along much more ambitiously and eagerly after the inauguration of the individual work. He was slow, but I felt that every step forward was firmly taken. I felt much pleased with his progress and mental awakening. Upon return to the class system he became discouraged, and, much to my regret, left school two weeks before the term closed.

"*Slow Pupils.*—In answer to the special question as to what opportunities are offered the so-called dullards, I have to say: In the course of a fourteen weeks' trial of the individual system of work and the return at the end of that time to class work, I have found that the individual system is *the* system best fitted for the dull pupils, who are in most cases very slow. A large part of their dulness is their very apparent in-

ability to keep up with their brighter and quicker schoolmates. They are physically and mentally unable to assimilate the same amount of mental food. Class work becomes 'cramming' to them, and this, as every one knows, is extremely harmful."

A school of fifty eighth-grade pupils, so full of life, vim, and fun that the school-house could scarcely contain them, by a change of teachers after the year had started, came under the instruction of —— —— in Pueblo, Colo. Under his skilful direction, sitting the most of the time at his desk (in feeble health), the solid phalanx of fifty irrepressible spirits broke up into several working groups under the spirit of individual responsibility. These larger groups differentiated gradually into smaller ones, and soon the smaller groups into individuals, each working, progressing, and qualifying according to his individual ability. The exuberant spirit, which before had bubbled over in countless tricks and escapades, now spent itself in the doing of work which completely occupied every individual worker by opportunity of continuous advance at every step of the way. The instructor, coddling his pupils and adroitly used by them in the doing of their work, had disappeared; while in his stead there came a school of intensely busy workers, each proud of his growing strength and conscious independent advancement. At first there was, with many, the feeling of helplessness that comes even to the older person when suddenly cut loose from the strong hand that has carried him; but, with all text advancement subordinated to the prerequisite development of self-reliant, independent, personal action, there soon came surprising results in indi-

vidual and unaided power to do work, and the school became a self-operating body whose central unit was the individual working in harmony with his fellows.

Then came sickness, which left the school without a teacher for the remaining eleven weeks of the school year—purposely without a teacher, for the superintendent wished to see the extent to which the new work could run itself. The school, without suggestion, appointed a committee of three to look after all matters of general arrangement. There was perfect working harmony. The school, moving in line, was always promptly on time in its appointments at the shops, gymnasium, and the music and drawing exercises. Each individual closed up and completed his work before the end of the year, and without suggestion spent his superfluous time in perfecting his studies or on points of personal weakness. The note-books, records, and manuscripts were passed in in highly satisfactory condition, and attracted much attention at the annual exhibition at the end of the year; and the entire work was so well performed that a stranger in the building would scarcely have known the absence of the teacher. At the end of the year these pupils were all promoted to the high school, with no discovery in subsequent years to reflect on the quality of this work done without a teacher during eleven weeks of time. A large percentage of this class is in college at the present time. This matter of history is not presented to show the value of no teacher, but of pupils trained to self-reliant, independent, and inspired work. Scores of references could be made to similar work, but this one will be sufficiently illustrative.

The High School.

The Central High School * of Pueblo, Colo., under the skilful instruction of a corps of highly qualified associate workers, has attracted much attention to its methods during the past ten years. In 1892 all required home study was discontinued; nevertheless, the school still prepared for life and for college as well as its competitors. The daily session was five and a half hours. The first half hour was given to music on three days, a lecture on Wednesday, and a pupils' concert on Friday. The remaining time was divided into five periods one hour long. Every pupil spent one hour in the gymnasium, leaving four hours for three other studies, more or less, as the pupils chose to carry. It was expected that each pupil should place regularly one hour per day on each of his three studies. The extra hour, in the cases of beginning pupils, was assigned to exercises of greatest need; but to older pupils, trained to responsibility and the plan, it was a free hour to be spent on exercises of greatest interest or need. All the work, study, recitation, and examination was done in the respective laboratories, and, as far as requirement is concerned, within this specified time. There were, no doubt, home inventions and home readings suggested by and growing out of the school work, but no home work was required. At the beginning of each hour an electric bell made all general changes; but there was no limitation on trained pupils passing at any time from room to room as shorter or longer

* Educational Review, February, 1894.

exercises required. Each instructor had his own equipped laboratory, shop, or studio, and was there for the convenience of the pupils. As a rule, the working sections came in classes at specified times; but there was no reason why pupils, whose progress made this inconvenient, or who wished special or more extended help, work, or study, should not come at any time. Although the laboratory was filled with active work, the instructor always had time to be approachable. The greatest people in the world are the approachable ones. Indeed, they are great largely because they glean from an army of workers. Everything is grist which comes to their mill.

In this school there was unlimited opportunity for individual advancement. There was no time requirement; the pupil could complete the high-school course in his own time. He could take the usual number of studies, or more, or less, and, if necessary, only one. There was no advance assignment of lessons; but the work accomplished was far greater than that ordinarily done. The teacher was the child's helper, and the discoveries of the pupils added much to the happiness of the teachers. The school was a miniature community, self-governing, self-reliant, and happy, because its individual members were also self-governing, self-reliant, and happy.

The Oakland (Cal.) High School, under the principalship of J. B. McChesney, accomplished some equally excellent results in furnishing opportunity to the individual. The departments in science, literature, history, mathematics, modern languages, classical languages, drawing, and physical culture contributed some

very valuable suggestions to the conduct of the work elsewhere.

Concerning the work in the Los Angeles High School, Principal Cates said in his annual report: "The work under the individual system during the second semester was highly satisfactory. It was favoured by a large majority of the teachers and bitterly opposed by a small minority. But the twelve weeks that it was in operation proved to me all that is claimed by it. The time alone that it saves the pupil ought to place it far ahead of our present graded machine. Pupils reach our high school now at the average of sixteen. They ought to reach it at fourteen, and probably would if they only had the opportunity of doing all they are capable of doing."

The Holyoke High School * presented a course of study which has been widely suggestive in the past few years. Principal Keyes has had no hesitation in saying that "if in the course of time five hundred pupils graduate from this institution, it will be possible for these five hundred students to come to their graduation through five hundred different courses of study." The equipment of this school will be highly suggestive to those interested in this phase of instruction.

The principal of the Field High School, Leominster, Mass., has been one of the strongest exponents of individual training. He has contributed many articles of great value in lucid exposition of this phase of education. His work, formerly at Orange, Mass., but now at Leominster, will well repay a careful examination. An

* The Larger High School. School Review, April, 1900.

illustration of the working of one of his classes is given in another discussion.*

Very valuable work also has been done in the Girls' High School, Boston, and in the San Diego High School of California. Lewis Institute of Chicago is also organized fundamentally along the same lines. The remarkable growth of the Fitchburg (Mass.) High School had its explanation in the liberal individual opportunity therein granted pupils.

The City System.

While much can be done, and is done in many places, along the lines described, by individual teachers here and there without respect to the work of their associate teachers, it stands to reason the plan can only reach high success where there is unity in plan throughout the entire system of schools. If the majority of teachers are securing work by requirement, the work of the teacher who makes no requirement is likely to suffer. It is not the fragment of the pupil that is to be trained to work from better motive and with better habits, but the whole individual. Then, again, laboratory work calls for a longer period to do its work. The entire aim in the work is different. The school wherein the individual is the unit sacrifices everything first to get interest, true motive, and correct habits of work, and in the early stages of its work ought not to be compared with other schools where present superficial results may appear better. However, no city school system under present environments can be ideal; and such a system must

* Page 168.

be leavened by model work here and there in its parts.

The individual work in the Pueblo Industrial Public Schools * has already been mentioned. While it stood probably first in time in an attempt to reconstruct a school system of any size, it perhaps need not, under the circumstances of personal connection therewith, be described in detail. It was an evolution, not a revolution, and found its way so gradually into operation that the change at any one time was scarcely recognised. Perhaps it may be of interest to mention that it was a development of a series of experiments, beginning in West Liberty, Ohio, 1877–'83, and Sidney, Ohio, 1883–'88, and reaching its moderate efficiency in Pueblo, Colo., in 1888–'94, with very successful continuation later by Superintendent J. F. Keating and his progressive teachers. Davis H. Forsythe writes: "Individualism in education is the oldest of systems; but the city of Pueblo, so far as I know, has the distinguished credit of having first formulated a practical scheme applicable to a large school community. She is no longer alone; others have caught the inspiration, and the Pueblo system has been introduced into prominent schools both on the Atlantic and Pacific slopes."

The city of Los Angeles, Cal., published several manuals † in 1895, which may be suggestive in studying the history of the work in the schools of that city.

The schools of North Denver, Colo., while under the

* Working Directions. Pueblo Industrial Public Schools, Pueblo, Colo., 1892. Also, Educational Review, February, 1894.

† Manuals One, Two, Three, and Four. Los Angeles Schools, 1895.

development of Superintendent J. H. Van Sickle, were a most excellent exposition of systematic organization for effective individual training. The characteristics of Superintendent Van Sickle's plan may be said to be—individual responsibility; semi-annual class promotions, attended with individual extensions; a minimum of requirement with a maximum of opportunity; opportunity for a pupil to take whatever number of studies is best for him individually, and to place most time on exercises of greatest personal need; additional time for study in the school; greater interest in school work, and less losses to the school. The high-school graduations are held semi-annually. Of the 101 pupils graduated under this plan up to the date of Superintendent Van Sickle's report * no two pursued identically the same course of study.

The Friends' School of Germantown, Pa., by vote of the Society, following the report of an inspector sent to visit the schools of Pueblo in 1894, made individual teaching the adopted form of work. Says the principal: "I believe individualism in elementary school work, with all that goes with it, will save much time in the school life of an ordinary child, will graduate him earlier and in better health, with an intellect that has gained in *power*, because it has grown to know what it is to possess power."

The schools of Worcester, Mass. (Superintendent Clarence F. Carroll), have a very flexible grouping system, by which the pupils are promoted more easily from grade to grade. In each room there are several groups,

* Proceedings of Department of Superintendents, 1898.

usually from four to six in number, and these groups are subject to change from day to day. Also, the group to which any one child belongs may be very different for the several studies. The result of this convenient adjustment is that the children of the schools of Worcester do not often fail to do the work but reach the higher grades earlier and in larger numbers than is the case in almost any other large city in America.

The same plan is in operation in the schools of Stockton, Cal.; in Youngstown, Ohio; Jamestown, N. Y.; and Hamilton, Ohio; and, with some modifications but many excellent and characteristic features, in the schools of Elizabeth, N. J.

The Cambridge plan has some very attractive features. The course of study is so built and the promotions so made that pupils may complete the grammar-school course in the usual four years, or they may do the work in either three or five years. The work is conducted largely by the class method.

Thirty years ago Superintendent William T. Harris, now Commissioner of Education, organized his schools in St. Louis so that the class intervals would be by the quarter year and half year, and not the full year as in schools ordinarily. This was found to effect a great accommodation in getting pupils into classes according to their different abilities, and was the best thing in that day in the grading of city schools. Better than this is Superintendent Van Sickle's plan of minimum requirement and extension opportunities under the same teacher. Still better is the laboratory plan, which permits continuous individual progress under the same teachers for several consecutive years of time.

In what way do the short-interval method and the grouping method differ from the plan presented, and in what way also is the latter different from the old ungraded-school method? Would you have us return to the ungraded school?

The short-interval method, and very frequently the grouping method, while far superior to the more usual class method with promotions at the end of the year, have their decided limitations in that they change the teacher too frequently. It is desirable that children should remain longer with the teacher rather than for shorter time; hence, the strong argument for departmental work. Unless the greatest caution is exercised, the splitting of the grades into smaller sections, which are still grades, only tends to the finer development of the school machine, which is certainly a result to be carefully avoided. Very frequently a single half grade placed in a school expands itself into a full-year grade. President Eliot says: "Of late years many experiments have been made in semi-annual promotions and other means of hurrying forward the brighter children. The aim of these experiments is laudable, but statistics suggest a doubt whether semi-annual promotions really promote and whether they do not disturb to an inexpedient degree the orderly progress of the school work."

Again, the characteristic feature of the individual plan is its laboratory nature. The teacher is not the hearer of lessons, but the associate, the inspirer of the children, and their director in the performance of work. There are many other essential differences. In the country school the method of work was a good thing as far as it went; but it lacked the superior teacher,

the better equipment and facilities for laboratory effort. The old New England Academy, which was another form of the ungraded school, was an institution of high merit and only disappeared because the graded school was a free institution, supported by so much available money as to dwarf its less successful competitor.

The Village School.

The methods which have been presented would apply not only to the work of the larger high schools, but also admirably to that of the smaller or village high school. In the village high school all the work must be done by one or two teachers. The classes ordinarily are many, some being very large and others quite small. Sometimes there are only three or four pupils in a certain class. The individual method has much to offer here. The day can still be divided into longer department periods, with all the work of several classes conducted approximately simultaneously. By this plan it is possible to apportion the school time to working groups of very nearly the same size, thus giving the pupils, who would otherwise be in very small classes to be heard at unfavourable times, approximately the same time as others. The smaller high schools and academies have always had more individual instruction, and consequently they have sent proportionately more candidates to the college.

This same possibility of equalization of numbers applies also to the smaller school system, or to the smaller district building, where ordinarily the lower grades or classes are very large but the higher classes very small. With the individual, and not the class, the

unit in instruction, grade intervals disappear, and the burden of work to the teachers and the opportunities to the pupils may be more equitably distributed.

The Rural School.

The ungraded schools have always had much individual opportunity. The teacher has been unable to help the pupils very much, and hence the pupils have learned to help themselves. Each pupil has advanced pretty much as fast as he could, so that the country boys coming to the city school must, to the chagrin of the city superintendent, usually be placed in higher classes than the city pupils of the same age who have been so comfortably coddled under the graded system. Then, there has been much advantage to the younger pupils in the higher views they have caught incidentally from the instruction of the older pupils. If the country school had had the same money to put in the teacher and the equipment it would have shown still better returns. The greatest difficulty in the rural school lies, not in the wide differentiation of pupils, but in the fragmentary division of the programme. Ordinarily the teacher becomes more of a train despatcher than a hearer of lessons. Great economy would result if this school would divide up its time largely into laboratory hours and have all work of a given character in operation at that time. This would give the desirable "psychological wave," mentioned by Superintendent Bliss. The teacher would not then be giving one-tenth of her energy to the reciting pupils, and nine-tenths to maintaining order. She would be in the midst of active workers, fired by a common impulse and working most of

the time through a period of favourable quiet. General explanations here and there, of interest to all grades of workers, would lift the younger pupils far more than might be thought.*

The Evening School.

How about the evening-school instruction? Has it not been more largely individual?

Undoubtedly it has been more individual. It is very possible much of my own convictions in regard to individual training has been suggested by a large experience with several thousand students in evening-school instruction. It has been to me a noticeable fact that an evening school is very apt to go to pieces when taught by teachers trained for graded-school work; and that, as a rule, the most successful evening-school teachers are those who have touched the graded machine very little. These older students, coming for opportunity only, will not waste time in educational work that does not fit them. On the other hand, the children in the day school, forced to attend by compulsory control, can not escape; but there is every reason to believe the differentiation of working ability is just as pronounced.

The Normal School.

If these principles are at all applicable to the work of the graded school, they must be taught and prac-

* The writer for two years taught an ungraded school of one hundred and ten pupils of all sizes, ages, and advancements, without assistance and in a single room, and therefore knows something of this subject.

tised by the normal schools. Many normal schools are already doing this. In Col. F. W. Parker's magnificent new school, the Chicago Institute, as his announcement says, "the individual is the unit." The same thing is true of the Teachers' College in New York.

In the Idaho State Normal under President Geo. E. Knepper there is no classification of students until they reach the graduating year. Each student is entered where he can get the most to himself, and pursues his work in a community of workers, all busy in that which is best for each individually. There is no class feeling and no unnatural rivalry; but there is a unity of purpose and a loyalty to the school perhaps surpassed by no other normal school of the country.

In a large way the same principle has been well exemplified in the policy of Colonel Parker, who has been wont to say, "Every school, no matter how ungraded it may be, is always capable of being divided into two great classes—those who must be helped, and those who can help themselves." Indeed, this rule is almost sufficient for the classification of any body of workers. The Colorado State Normal School has been a strong promoter of the doctrine that the school must be for the individual. The principal of the State Normal School at Worcester, Mass., and the principal of the State Normal School at Westfield, Mass., have introduced many happy expedients for the better culture of individuality.

A new teacher, once coming to the Worcester Normal School, inquired very anxiously concerning the course of study, and for directions as to what she should do with the children. "Oh, do what you find to be the best," replied Principal Russell. "But what shall I

give the children to do?" anxiously inquired the teacher. "Oh, give them anything; the chances are you will give them too much." Says Principal Russell, "When a child wishes to stand up or to sit down, either is his privilege. If he wants to leave the room, that is none of the teacher's affairs." Even the furniture in the rooms in this normal school is of sufficient variety to guarantee to the child very much his own choice of position; and it can be inferred that the adaptation in the work of the school is equally felicitous.

The College.

It is probable that there is no one stage of modern instruction where the spirit of reform makes such slow progress as in the college. In almost every college the students in recitation still face the light, from which the instructor gets almost sole benefit. The best working period, the very heart of the day, is entirely consumed by the dead recitation exercise. This period is, to a large extent, worse than wasted. The student sits passively on a hard seat for four long and usually tedious hours, either doing nothing or listlessly trying to go through the lifeless recitation; and the result is often a twisted spine from the long-continued habit of supporting the body upon the writing arm. This time is full of potentiality for effective work by the more active method. In most colleges the reciting classes are so large that the circuit of the class can not be made more than once per day, and frequently not so often. Consequently, after being called on once, the student has pretty good reason to believe that he need not pay very good attention during the rest of the

recitation; or, if called on to recite to-day, the temptation is strong to run, without preparation, the risk of being called upon to-morrow. Why do not the college people realize this waste of precious time; that it is active study that makes the student, and not passive waiting through long hours of unfruitful torture, wherein the premium is liberal for dishonesty and defective work? It is strange that the more active method of the university above, and the growing tendency in the same direction from below, do not rapidly bridge this chasm in scientific education. The college has much to learn from the better methods of the lower-grade school.

Says the president of Moore's Hill College, Indiana: "We do not claim the individual plan will level all the mountains, nor make all the crooked places straight. We do believe, however, that if this personal work were commenced in the primary departments, carried through the grades and into the colleges, it would revolutionize our public-school system, put new life and vigour into our colleges, and inspire thousands of young people, who now drop out of the ranks, to go on and complete the work."

A college professor who once introduced individual teaching and opportunity into his classes reported that he was compelled to go back to the class method because the students accomplished so much more work under the new plan that he could not find time to hear them recite. Poor man! When would he learn that the detailed recitation is a non-essential, and that the most he can give the enterprising student is association and inspiring direction with helpful criticism at points of fundamental importance?

The University.

Thomas Jefferson was the father of the elective system in America. His ideal university, crystallized later in the founding of the University of Virginia, called for an abolition of the prescribed curriculum for all students, and consequently for the overthrow of the class system; the introduction of specialization; the uncontrolled choice of studies and lectures upon the part of the student; and the reduction of requirement and discipline to a minimum.

Originally the University of Virginia consisted of eight separate schools, afterward increased to nineteen. Of these, a student entered three. If studying for a titled degree, he was required to take a group of schools answering to the nature of the degree sought; if not, he elected any combination he wished. Each school determined its own graduation; and each offered the degree termed "Graduate." That is, a diploma read, "A graduate of the University of Virginia in Latin" (or other subject); but such degrees were not titled degrees. No specified training was required for admission, but the student was expected to do the work. There was no time limit, and no annual promotion from class to class. The work of the student embraced two elements—associate work, performed largely in the class; and much extra personal work. In each department a certain ultimate minimum was required for all; but the time of accomplishment was purely individual. As the student proceeded he was granted his separate graduate degrees. When accredited with the requisite number of graduate degrees, his titled degree was declared.

There was no marking system. Responsibility belonged to the student. Every one was accredited a gentleman; when he gave evidence that he was not, he was retired. Such was the beginning of the elective system in the universities and schools of America.

President Eliot, in his great work at Harvard University, has given the best of his life to the development of the elective system and to its adaptation to the essential aims of the university, the college, and the secondary and elementary schools. At Harvard the individual student finds almost any study or combination of studies sanctioned by the needs of modern life. It is said that it would take a single individual between seventy and eighty years to go through the courses now offered at Harvard College, without counting the more advanced courses. The work is essentially laboratory. The student has choice of studies, great individual attention, personal association with strong men, and capable leadership.

Says President Eliot, in a magnificent article on Liberty in Education: * "A university of liberal arts and sciences must give the student three things:

"1. Freedom in choice of studies.

"2. Opportunity to win academic distinction in single studies or special lines of study.

"3. A discipline which distinctly imposes on each individual the responsibility of forming his own habits and guiding his own conduct."

The distinguished success of Harvard University and its great moulding influence on other institutions,

* Eliot's Educational Reform, p. 125.

university, college, secondary and elementary, are monumental evidences of the intrinsic worth of President Eliot's life doctrine.

Ten years ago, on the great Stanford estate, was opened the Leland Stanford Junior University, a monument built by Leland Stanford and Jane Lathrop Stanford, to the memory of their son Leland, who is said to have conceived the idea of the university. The keynote of the entire university is well sounded in President Jordan's fundamental doctrine of Opportunity to the Common Man. Any person of honest desire for higher training will here find the university's doors open to him. He is freely entered, but he must establish his right to remain. Personal association and sympathetic direction are cardinal principles in the university's policy. Even the president plays ball on the campus; and, in the laboratories, professors and students work hand in hand. There is probably no institution of higher learning in America, governed with so little red-tape; and yet there is probably none other where the feeling of personal loyalty and responsibility is so great. The sun shines brightly on the Stanford Quadrangle.

Says Earl Barnes of the work at Stanford: * "Subjects are not grouped in classes and no courses of study are laid out. Throughout the period of four years the work is elective, and students select the work best fitted to their individual needs. There is but one restriction on the freedom of choice: each student must devote one hour a day for the four years to some one line of

* Educational Review, vol. vi, p. 360.

work. Thus each student has one major subject, and one-third of his time or more for the four years is given to that subject. The professor in charge of a student's major subject is supposed to be a guide, counsellor, and friend to the student; and his advice as to the best lines of study to pursue has a large influence with the student. . . . Students who are at least twenty years old may be received without formal examination as special students, if prepared to do the work they wish to take up. They are not candidates for degrees, but have all the advantages for study offered by the university."

The University of Chicago also aims at the conservation of the interests of the individual. In exposition of this ideal President Harper has said: *

"First of all, and, if I mistake not, most fundamental of all, is the principle of individualism—a principle capable of application alike to students, instructors, and institutions. Every man born into the world comes into it with the limitations of his work clearly defined by Nature. The man who succeeds in life is simply the man who is fortunate enough to discover the thing Nature intended him to do. In some cases Nature has seen fit to indicate early and definitely the line of work in which success may be attained. In others the discovery is made, if at all, late in life. In the growth and development of the body and mind each man or woman is to be treated as if he or she were the one person in existence. The individual, not the mass, is to be cared for. From the beginning the student should

* Address at Atlanta Educational Congress on Some Phases of State and Non-State Higher Education.

receive such treatment as will enable those who are watching his development to learn what he can do only with difficulty. But this is not to be limited to the beginning; it should be continued to the very end of what would be called the preliminary period, a period which in the case of every individual continues until the clearest evidence has been secured of the discovery of the principal work which the individual can do to advantage. When once the discovery has been made, with certain qualifications, the pupil should be allowed to devote himself uninterruptedly to that for which, as experiment has shown, Nature fitted him. The next aim will be to develop those functions which are capable of development. It will not be forgotten that the culture should be as broad as possible; but it is true that the possible fields of mental culture are very numerous and that, after all, no man, however broadly cultivated, comes into contact with many of these fields. It must be admitted that a large part of our educational work fails utterly of accomplishing the thing in view. Men pass through all the grades of primary and secondary work, enter college and do university work, and yet are reckoned by the world at large, and even by those most intimately associated with them, as failures. And so far as adding anything to the life of themselves or others, they are failures. Why is this so? Because the idea has prevailed so extensively that men might be educated *en masse*; that one after another they might be ground through the curriculum of study without reference to special tastes and predilections. A class of a hundred men enters college, no two of them alike in equipment, natural taste, mental aptitude, or

intellectual ability, and yet they have been required to take the same studies, within the same number of hours, in the same way and with a sameness throughout that makes college life for the most of them a distasteful thing and an injury. I stand ready to assume the responsibility for the statement that many men are injured by college training, and that the cause of the injury in nine cases out of ten has been the inflexible cast-iron routine of the college curriculum, which, let us congratulate ourselves, is fast becoming a thing of the past. Less harm has been done than would otherwise have been the case because, as a matter of fact, only those men of a certain disposition in days past have received an education. A great change is taking place among us to-day. Men of different types of mind, men who have no idea of becoming scholars, men who will be artists, mechanics, business men, as well as those who have in mind the ministry or the law, may receive an education adapted to their needs and capabilities. That the doctrine of individualism is beginning to be respected is evident from the establishment of scientific schools, technological schools, and from the high position which these schools now occupy side by side with the college, a position to which they could not lay claim even so short a time as ten years ago. But the same sin, for it is a sin against God as against man, is still committed in most of our institutions, even in those to which reference has just been made. The individual is forgotten in the mass. In how many colleges is it the custom to take, as it were, a diagnosis of the mental constitution of each student similar to that which the physician takes of the body? It is not unusual in

these days in connection with the work of the department of physical culture to have each man examined, the weak points of his body pointed out and the principal exercises indicated which will help him. Is such a thing done for the mental constitution? The college methods of the past have compelled men to fail, and in many cases it is more or less accidental that a man has received real and genuine help in his development. Why is it that so many men achieve marked success in life, in their profession, and in every line of business, who have never seen the inside of college halls? Because contact with men does for them what technical education is supposed to do for those who avail themselves of its advantages. The feeling against higher education which has existed is not without some justification. A radical change is demanded; a change which shall shake to the foundations the educational structures that have been erected."

But the highest type of university in America is found in Clark University. Here the work is devoted entirely to higher research; there are no college departments. The work is purely post-graduate. The student comes with some original line of research which he wishes to develop. For three years he devotes himself to this single purpose. In the prosecution of his work he commands for his help the president, the professors, the university's equipment, and the great library. There is no definite dividing line between the professors and the student, but the most intimate association. The professors rely on the discoveries of the students, while the latter find in the former their most helpful friends. There are no requirements, but everything is

open. The student commands the resources of the university as much as do the professors. Each one has his own place to work, and is his own librarian and demonstrator. The great laboratories are his own. As his work progresses he has the advantage of whatever criticism he wishes to summon. On Monday evenings the students gather at the president's home for seminar presentation and discussion, at which time and place each in turn presents, for the criticism and discussion of his fellows, his discoveries and the development of his work to that particular stage. Here is association, inspiration, initiative, and unlimited opportunity. The work at Clark University is absolutely individual.

The Unity of Scientific Instruction.

From this discussion of the subject it should now be evident that the principles of individual training apply, with proper adaptation and adjustment, to every grade and stage of educational work.

They perhaps can not be applied in the same ways to all stages and departments of work, but still their fundamental bearing is essentially the same. There are not only the varying characteristics of pupils that must be conserved, but also the individualities of grades, of subjects, of communities, of equipment, and of instructors. The work calls for great versatility, for endless adaptation, and for profoundest study; but its cultural products will respond proportionately.

President Eliot has well summed up the whole argument in saying,* "It is hard to say at what stage of

* Eliot's Unity of Educational Reform. Educational Review, October, 1894.

education, from the primary grade to the final university grade, the individualization of instruction is most important. The truth is that the principle applies with equal force all along the line. For the university president, the school superintendent, and the kindergartner alike, it should be the steady aim and central principle of educational policy; and whoever understands the principle and its applications in one grade understands them for all."

CHAPTER XI.

THE CHILD'S OPPORTUNITY TRACED THROUGH THE SCHOOL.

THE child has an inalienable right * to be a child; to be understood and appreciated; to joyous play, freedom in movements, adequate sleep, nourishing food, companionable pets and, within certain limits, self-chosen friends; to an acquaintance with Nature; to capable leadership; and to opportunity for initiative and unrestricted progress.

Happy is the child who spends his infant years in the loving, helpful companionship of parents who live for their children. Says Henry Ward Beecher, "The mother's heart is the child's school-room;" Shakespeare, "To you your father should be as a god"; Forbush, "At the best the God of one's childhood is only a great man, and it is a solemnizing fact that he often bears the face and nature of the child's own earthly father"; Coleridge, "A mother is the holiest thing alive"; Kate Douglas Wiggin, "Her life may be a cipher, but when the child comes, God writes a figure before it and gives it value." Happy is the child in such

* Kate Douglas Wiggin's Children's Rights; also, Charles W. Warner's Being a Boy; A. F. Chamberlain's The Child.

a home, a substitute for which the school can never be; and thrice happy he who, all through the growing days from infancy to manhood, has the loving presence and association of those who see in what they may do for their children the completeness of a well-rounded life—the best hope of immortality.

To the child and the man the school-room door should be always open. The requirement that any given stage in education must be entered on a given day, or at a given time, is unnatural and unnecessary. Every day should be a beginning day, and never in the life of a child should such an abnormal thing as non-promotion appear.

The basis of gradation must be the placing of the child where he can get the greatest good to himself—*where he can be the happiest.* If the child is of over-age, he should never be degraded by being classified with children much smaller, but should be placed more nearly with those of the same age and general physical condition, where, by individual attention from the teacher and his own absorption of higher influences around him, he will be lifted more rapidly to his proper place.

If the child from necessity enters school late, or if he must be absent a day or a week, a month or a term, his loss should never be disproportionate. He has a right to expect that the school shall fit his individual needs, associate him with those who can help him most, and permit him to advance as naturally as grow the trees of the forest. There should be no time element. He should be permitted to accomplish as he may be individually capable.

His motives must arise from the recognition that every heart contains a spark of divinity; from opportunity to place his life in harmony with beauty and law; from personal choice of the right over the wrong, and to do work because of its innate worth and contribution to the happiness of others. The child must have the exercise of free will; but he is also entitled to suggestion and protection. Not the result but the endeavour deserves commendation; for as Ruskin says, "It is the *effort* that deserves praise, not the success. Nor is it a question for any student whether he is cleverer than others or duller, but whether he has done *the best he could with the gifts he had.*" It is customary to begin the day in most schools with a morning prayer. It would be equally appropriate to close the day with a benediction—at least with the benedicting approval of the teacher, expressed not in per cents or other discriminating degrees, but in warm-hearted and sunshiny encouragement to each and every child. If he can not be reached by such motives, either the child or the teacher is a defective, and a consultation of experts is in order.

With such opportunity for placement and with such actuating motive the child takes up the work of the school. Let us now trace his career through the school.

In the *Play School* the child finds his opportunity for rapid growth, for drinking in from and looking at Nature, and for freedom in movements. The grouping of children is entirely according to that which interests them most. In contact with the forest, with the school gardens, with pets fostered by his care, with limpid stream, playing fountain, changing hillside, and the stars of night, the child finds in Nature his principal

subject-matter. By imitation and inspired expression he learns much of his mother language; and there is no objection to natural acquaintance with a foreign tongue. To him the story-teller opens up a wealth of myth-lore, which is the spirit of a world of facts expressed in fruitful form. Santa Claus is a living reality, for it personifies the heights and depths and breadths of altruism. Without Santa Claus the child is poverty-stricken and denied one of the largest and noblest conceptions of life and of truth. In the same way, other myths are pregnant with beauty, history, personification, comprehensiveness, and reality. The child learns much from pictures and expresses himself in language, in drawing and song as linguistic exercises, and in constructive building. His play is largely imitation and representation, but free and spontaneous. He has the guidance and association of his teacher, who within certain limits supplies him with abundant material for expression and, under suggestion, keeps the work in orderly sequence. His movements are natural and the furniture is varied. The child studies things. There are no technical drills; but if the child spontaneously and by his own effort comes to an interpretation of mystic and mechanical forms, there is no objection. The fact is he will do so anyway, in an elementary manner, to a large degree. Then comes the fruitful time for alphabetic training. Its recognition is the basis of transition to the succeeding school. In all his work he gets little or much as his individual interests may demand.

In the *Elementary* or *Alphabetic School*, as budding faculties may manifest themselves, the child gets his

acquaintance with the fundamental alphabets of learning and with the working tools on which his subsequent work is largely dependent. Up through the recognition of the beauty of harmony he is placing himself more and more under control, but under circumstances of great freedom. In Nature study he is learning the delights of contributing to the world's wealth through his own growing of the best trees, vegetables, and flowers; in the domestication of animals, ordinarily wild, and in contemplation of Nature in her own fields. He begins to read, and is given certain phonograms which enable him to be immediately at home in the recognition of new words. He is also given considerable opportunity for interpretative entertainment before the entire school. He still draws as a language exercise, because he can tell so much more in drawing than in any other way; but writing, as his own exercise and as a convenient approximation of print, now becomes his means of more definite record. His oral language, by added experience, takes on its fuller expression; and as the result of comprehensive concept, he tells all he can in written communication. By the mother-tongue method he rapidly advances in versatile expression in French, introduced some time during this period, preferably early. Historical narrative now tells much of the lives of great men; and choice myth, for culture of the imagination, still holds its place. Geometric forms and the fundamental combinations and operations of numbers are well taught. The tables are largely presented by ready-reference charts, by the building of tables, by extended applications, and, as the child gets ready for the short-cut, by storage of the

memory with intelligent forms. Construction enters largely into the realm of toys and playthings and takes its key from individual interest. Literary gems and music are taught through attractive concert exercises; and play is free and spontaneous, but under encouragement and with association. The period is one of growing technical drill and the acquiring of skill. The children are associated in flexible, helpful groups, but with no limit to healthful advancement and intelligent choice. To a limited extent there are class or group exercises in technical drill, but the predominating characteristic is one of helpful quiet. Inspirational and information talks and class exchanges on subjects of general value are always in order; but there is little of the formal recitation. There is also no mechanical comparison of results. Each child is protected in doing that which is his best. The programme is flexible; what can not be well done to-day is left until to-morrow. The moment an exercise fails in interest it is an unprofitable exercise and is thrown aside for a new approach at another time. The major work of the pupil in this school is under a single teacher; but in several subjects the work is departmental. The child meets experts only.

The *Intermediate* or *All-Round School* adapts itself to the pupil in his period of fullest childhood. In it is obtained a general survey of the related fields fundamentally tributary to specialized work. The child has realized his place in a harmonious working community and is given still greater opportunity for general helpfulness. He has his individual interest more actively employed in his study of Nature, in the taming

of wild animals, in competitive culture of best products, and in prevention of pests; but he also becomes an integral part of humane organizations for the protection of birds, frogs, toads, and parks, for the honouring of the sanctity of the home, for the growing of bird foods, and for systematic destruction of the larvæ and eggs of mosquitoes, beetles, caterpillars, moths, grubs, scales, and other injurious life. He gains an elementary knowledge of the geography of the world and the means of finding details when he wants them. His language work acquaints him with polite and business forms, records his discoveries, and clothes his imaginative creations. French is continued sufficiently to hold his previous acquisitions and skill with moderate advancement, but German is now added; both by the mother-tongue method. History is represented by leading facts and characters, with wide opportunity for ramifications and collateral study. Both history and geography have their hour of class interchange, with every encouragement to contributions from a wide variety of sources. Drawing is still a means of expression as each child individually sees, and is much used in illustration. It also plays an important part in inventive design, and is closely related to the pupil's constructive exercises. These latter begin to take on more and more the character of scientific apparatus, mechanical toys, and useful construction; sometimes individual, and sometimes co-operative with distribution of labor. The useful industries in modelling, farming, carpentry, sewing, cooking, and designing follow interest and choice. Under direction, the child reads good books of native interest, records his generalizations in digest forms, writes literature of his

own creation, of which he becomes author, printer, illustrator, and binder. He also grounds himself more and more in the fundamental arithmetical processes and gains a knowledge of the principles of geometry, but in both of these studies does little or much according to leading interest. In music he has his part in the general exercise, is given time for outside training, and is encouraged to his own individual creation. He plays usually with the entire school, the teacher also taking part; and with his set. For gymnastics he has place in general drills of bright character, but in special cases is assigned corrective exercises and given special care. The child also learns to swim.

The several studies are grouped around four or five general units. The work is departmental, with sectional responsibility. The programme, as far as the departmental correlations permit, is flexible. No one day completes the whole cycle of work; no two days in programme are necessarily alike; but a week of work represents a fairly equitable apportionment of time. The technical work is all done in the respective laboratories. There is no required home study; but there is much spontaneous home work naturally growing out of the school exercises.

On account of the garden work, longer play, bath opportunity, gymnasium, and shop exercises, the hours are longer; but the time is full of intermissions. The work is planned so that an individual child may take all the work, in the doing of which he may take his own time; or he may omit much work not fitting his condition or bent. Much of the work in Nature study, reading, language, writing, literary creation, invention, con-

struction, mathematics, music, and gymnastics is individual; but in Nature study, construction publication, music, play, and gymnastics he has co-operation; and in geography, history, current events, etc., he has his seminar. There is no objection to Latin, if taught as a live language, in lieu of the modern languages; but with inability to do both, the modern languages are preferable.

If at the age of approximately fourteen in boys and thirteen with girls, because life energies are centred in absorbing physical changes, there comes a special need of school relaxation, then at this age, without postponement, or whenever it does come, the school should exempt the child from work of special demand, permit irregularity in hours, and favor a year, should circumstances so require, of entire freedom from the school. The intermissions in the programme, the absence of unnatural incentive, and the building of all work on the play instinct, in themselves are essential safeguards. But beyond this the school should be built so as to permit much absence without work to be made up in a given time, and with opportunity for much work to be omitted. The home and the school should be faithful protectors during this time. Relaxation or diversion of the child from insistent work should be guaranteed, but should be unconscious as far as possible.

Our pupil is now in the *High School.* He has a general survey of the geography of the world, loves Nature and good books, expresses himself well in English, can understand and speak French and German, has had his ambition stirred by historical biography, his fancy by myth and legend, and his patriotism by the story of his country, can perform the ordinary arithmetical

calculations of business life, can design and create, enjoys music and art, knows good from evil in his physical life, enters heartily into play, knows how to handle himself and to contribute to the happiness of others, sleeps well, eats well, and is in good health. The nation has a right to expect such a product from the lower-grade school.

The work is departmental. The student has his own choice of studies and combinations of studies, excepting that English is always a major. In his choice he has the wise counsel and suggestion of his teacher and friend. There are no class divisions, because there is no time element; and pupils are bridging the customary intervals in every conceivable manner. The school works by a general programme of hourly periods, subject to individual modifications, and with always one or more free periods for special application. The teacher, books, departmental library, apparatus, and material are in the departmental laboratory, where the teacher is always approachable. The workers usually enter in class form, determined largely by the general programme, and are busy on some study or investigation of common interest; but there is nothing to prevent individuals of other advancement coming at the same time, for there is no general recitation to disturb or by which to be disturbed. The teacher is leader, associate worker, and helper. There is little detective recitation; occasionally the lecture; often the seminar; always the individual exercise. In science the pupil is testing, trying, discovering, tabulating, generalizing; in Latin, or perchance Greek, if Greek be in the high school, he is individually progressing and qualifying; in

French and German he reads as fast as may be best, but has his colloquial and interpretative exercises on points of common interest; in grammar, either Latin or English, much can be done by the class method, but not all; in literature and history the pupil masters what he can, writes his own digest and criticisms, and enjoys all the more the lecture interpretation; mathematics lends itself unlimitedly to his individual accomplishment; design, creation, and composition are conservative of his individuality; music and art are profitable only as they are rich in personal interest, which is the perfect key to the interpretative recital or lecture and organization into orchestras, musical societies, and art clubs; and gymnastics certainly at this period must be individual, with correlation of play for team and federated work. All promotions are daily. The basis is the single piece of work, individually and satisfactorily done. This piece of work becomes an integral part in a solid masonry. There are no skips in the work made by absence or vacations; no non-promotions nor lifeless reviews. When the student returns another day, another term, or another year, his work that far is well done. It contains no omitted or defective parts. He begins just where he left off.

The student is not interrupted in his continuous work by irrelevant recitations. His work in note-book or verbal translation or explanation is subject at any moment to criticism. There is no reason why he should disguise his ignorance. The incentive to dishonesty is wanting. Given association, suggestion, friendly criticism, and opportunity, he will do more work and better work.

The student is capacitated by better health, better training, and better motive. He feels the glow of personal mastery, creation and discovery, realizes his responsibility, is happy because the work fits him, and is strong because the work which he accomplishes is absolutely his own. Opportunity for choice strengthens his character; for individual promotion saves him time; for free relaxation insures his health; and for interest relates his work to definite purpose. Why should not such a unit make the better society than when its several parts have had the steps of their reasoning all mapped out by their teacher, have been crammed with information with little opportunity for discovery, ponied and coddled through different places by parents and classmates, actuated for a reward and not for truth itself, and incapacitated by home study which is desultory and ineffective at best? Is it any wonder that students seldom find time for attendance on an evening lecture, study much of the Sabbath day, are perfectly at sea in a library, and graduate from the high school in defective health, without purpose or adjustment to life? There is no comparison between the results of the two schools.

The high-school period is the period for the acquirement of greater skill in manipulation, and for the exercise of the several faculties to make them strong, self-reliant, and self-directive. For this reason the term Gymnasium is far better than that of High School, for the former expresses the function perfectly. It is also a period for new ambitions, the expenditure of active energy, for special conservation, and for strong convictions and debate. The individual conservation

of work lends itself effectively to community government, to contribution, debate and co-operation.

Our discussion has now reached the *College*, but there is little new to be added. Every subject of the college and the university has been anticipated in the primary school. The same fundamental principles are carried forward, excepting, perhaps, the college capacitates all the more for altruistic endeavour; and the university, by the very nature of its province, tends a little more to isolation. There is still the same cardinal factor of association with higher personality, the same opportunity for research, patient study, culture, and discovery; the same rewards that make investigation worth pursuing, truth worth possessing, and life worth living. This, however, must be added, that under the tremendous leverage of this line of work, all along from the kindergarten upward, the college and university will be lifted into a realm of possibilities little comprehended in the enforced policies of present-day conditions.

"Do you know," remarks some faithful teacher, "that you are making teaching a very difficult vocation?"

I certainly am not trying to make it easy. The best things in life are really the most difficult things to get. But on the other hand, these principles ought to make teaching easy. To the teacher, thoroughly qualified and prepared to direct, the work will really become more enjoyable, more dependent on general preparation and less on detailed preparation, and by utilizing the discoveries of the children, more enriching to the teacher personally.

How about the hours the older pupils will be in the school? Would these hours be more or less?

Preferably they would be more, but the programme would now be less exacting. All the school work, excepting certain spontaneous work, would now be done in the school. The school laboratories would be opened a greater number of hours, but all pupils would not necessarily be there all the time.

Would not this procedure work the teachers harder than they are now worked?

Not necessarily. The laboratories being open longer hours does not mean that every teacher should be there all the time. With the departmental rooms properly grouped they would be under capable supervision without a teacher constantly in every room. Pupils naturally would seek the room when the teacher was there. Even if they should come in small numbers for individual work, pupils trained in this way to habits of research and self-respect are perfectly safe, in nearly all rooms, for their own guidance during the hour of the teacher's absence.

How would the teacher find time to individually conduct all the work of so many different workers?

If the teacher insists on conducting the work by doing herself all the work of the pupils, and by hearing recitations on all details, she will not have time; but if she arises to the nobler mission of directing the self-activities of many workers, with here and there the guidance of an artist's hand, she will have abundant time.

What is the basis of classification of pupils under this plan?

There are no fixed and arbitrary classifications of pupils. The aim is to place a child where he can be

the happiest—that is, where he can get the most good to himself, and in turn make the greatest contribution to others. In a broad general way it may be said that the child passes from the play school to the alphabetic school at a time when the brain has approximately reached its maximum growth, and energy is now being centred more in the development of the smaller brain areas. By the end of the period devoted to the alphabetic or elementary school he has gained considerable co-ordination of the finer muscles; and he has a good working knowledge of the fundamental processes in reading, writing, numbers, and other tool acquisitions. He can gather thought and working data from the printed page, can write a good hand, express himself in drawing and language, perform elementary problems in the five fundamental processes, can make simple toys for himself and others, and is keen in observation. With this ability to command himself, he passes into the intermediate school, where his studies now become more comprehensive and involve a general survey of the common fields. Transition to the high school or gymnasium is marked by the interests which characterize the early adolescent period. Within any one school, the grouping is broad, flexible, ethical, and natural. As a rule, the ethical placement of a child is where he can be the happiest.

Are the results described possible where a school is only partly organized for individual work—say in only one or two departments?

Not to the high degree desirable. There must be the longer periods for laboratory work. There must be unity of spirit and purpose. There must be no op-

portunity for one department to encroach on another. Without these essential conditions the work may find some happy realization, but not to its full fruition.

What are the best factors in the education of a child so trained?

The ability to command self; the development of Nature's endowment; the discovery of interest; the delights of search after truth and of personal creation; the linking of work to life purpose; and the realization of personal contribution to the *summum bonum* of human happiness and human enrichment.

"Self-reverence, self-knowledge, self-control; these three alone lead men to sovereign power. Yet not for power; power of itself would come uncalled for. But to live by law, acting the law we live by without fear; and because right is right, to follow right—were wisdom in spite of consequence."

CHAPTER XII.

THE FUNCTION OF THE TEACHER.

"God mouldeth some for a schoolmaster's life." (Thomas Fuller.)

THE greatest thing a teacher ever brings to a child is not subject-matter, but the uplift which comes from heart contact with a great personality. This should be the first prerequisite in determining the acceptability of a teacher. An old Greek adage reads, "Give your child to a slave, and instead of one slave you will then have two." It certainly is true that as each adult thinks back over his own school career he ever recognises, as the thing which helped him most, the impulse which came from some sunshiny and capable teacher.

President Charles F. Thwing once made a very interesting study of the responses of fifty representative men to questions involving "The best thing college does for a man." * The entire drift of the testimony was that the most these men got from the college was inspiration from life contact with great leaders. The subject-matter of the college received a very small percentage of credit. Among other good things presented in this study, President Jordan says, "The best thing

* Forum, March, 1896.

a college, as a rule, does for a young man is to bring him into contact and under the inspiration of other men of higher type than he is otherwise likely to meet." Dr. Parkhurst remarks, "While books can teach, personality only can educate"; and Henry M. Alden testifies, "The best thing which Williams College did for me was to bring me within the scope of Dr. Mark Hopkins's inspirational teaching." President Thwing sums up the whole matter in saying, "A comprehensive inference, therefore, to be derived from these letters is that the best thing which the American college has done for its graduates is in giving a training which is itself largely derived from personal relationship." The same great underlying truth was cogently expressed by Garfield when he said, "A log with Mark Hopkins on its one end and James Garfield on the other is college enough for me"; and also by Dr. Willard Scott in saying, "Isolation with greatness is the greatest parent of growth."

This, true in the college, is just as much in evidence in the lower-grade school. We can not be too careful in our insistence on great personality in the early awakening years of life purpose. A single hour in the day, a single year in the school career, so uplifted, is an education in itself.

To be a teacher so endowed one must possess good health, a sunshiny heart, a love for God and for children, a vigorous mind, and qualities of capable leadership. Undoubtedly, some teachers are great in personality without one or more of these attributes, but few souls are so strong as to be great when otherwise constituted.

To be fresh and vigorous for such personal leader-

ship, it is important that the teacher should not be worn out by advance preparation of lessons—the school hour calls for the very embodiment of potential energy. The minister who comes fresh from an hour or day of rest is fuller of personal magnetism, the quality that tells in effective preaching, than the one who expends all his energy on manuscript work. So the teacher must have vital force, unimpaired by out-of-school work, in order that she may lift her pupils. It is essential also that the teacher should not be laden with slavish recitation work. There must be opportunity; first, for intimate association with pupils in kindred pursuits; second, for the lighting of the pupil's life torch at the altar of inspiration, by presentation of lofty personal ideals; third, for the communistic enjoyment of the discoveries of correlated labor. These essentials can obtain to only a limited extent under the slavish exactions of hearing recitations, marking time, and keeping up to the mechanical assignments demanded by the graded system. They are, however, wonderfully effective in the school of laboratory practice.

The graded system has been in force so long that many conscientious teachers feel that they are not doing their duty unless they lend themselves to its long-time practices. Now let us see what are the values of its leading exercises.

Preparation of Lessons.—Can an immature person study well when distracted by the more lively exercise of the class recitation? Can he work with any correct habits of thought by the evening lamp,* interrupted by

* "Artificial illumination is faulty at best, but, even in the best and most favoured homes, the elder group is apt to monopolize

the demands of the home, the uncongenial exercises of others of the family, and the coming and going of constant distractions? How much is such work worth in pure educational value? The adult seeks a quiet library for the accomplishment of work. Why should we expect more of an immature child? Is it not true that the teacher's contact with a pupil is largely centred in detective exercises; and that the pupil receives relatively little training in how to study, in how to make work easy, in how to proceed? The laboratory plan commends itself in that it is practically all study. The teacher's direction is centred on the study of the child. The habit which makes the interested, trained, independent, and effective student is the cardinal aim of the teacher's policy. Is this not the major purpose of the school; and in the past has it not been largely a matter of drift? Is it not possible that much valuable time of school life has been squandered because the children have not been systematically taught how to study?

The Recitation.—I am willing to accept, as a legitimate means of individual training, any recitation when it builds itself on individual interest, gives free opportunity for individual advancement, and eliminates all dead time. But does the old-time recitation do this? Is every child in the class normally interested? Is there free opportunity for each one to live up to the best that is in him, whatever the degree may be? Is there not always an honoured head to the class, and also a dis-

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the shaded drop-light or student lamp, while the schoolboy with his text-books is found somewhere in the outer circle." (McLean.)

couraging tail? Are all the pupils of the class equally occupied during all the moments of the recitation? Admittedly, some are getting great value from their recitation; but are all so benefited at every point of the procedure? Are not some of the pupils carefully calculating their chances of being called on, with every encouragement to take a rest as soon as their turns have passed? Are not many learning skill in looking the teacher squarely in the eye, without hearing a word that is being said? Is there not encouragement to the shrewd practices of certain pupils, who know how to successfully get a chance to recite on easy passages and to throw the more difficult ones to their classmates; or to call out the talkative teacher, who can almost always be induced to kill time until the recitation closes? What are the ethical values of this kind of work?

Or suppose the work is all honestly done; how much of the work does each pupil recite on? What fraction of the recitation period is he actually reciting? Is not the pupil's entire day practically filled with recitations, with only a very small fraction of the time actually filled by the pupil's own recitation? Is it not true that the best pupils are the ones most called on when the visitors are present? Does the recitation of the bright pupil, or of even the average one, fit the necessities of those at the foot of the class? Is there not a supernatural strain on the teacher in attempting to do what can not be done? Is not the recitation a fearful bore to the visitor who is forced to sit through its long, tortuous, and uninteresting passage? If this is true in the experience of the visitors, who escape as soon as common courtesy permits, what then of the pupils who

spend the greater part of their school lives in its unproductive passivity and are supposed to be interested and normally profited when they are not?

In contrast with this, the study time and the recitation hour are merged, in the laboratory school, into one common period of continuous work for each and every pupil. There is recitation, but it is incidental, not objective. It fits every pupil at the point of his greatest need. It engenders a feeling of liveliest sympathy between the pupil and his teacher. The platform and pedestal have disappeared. The teacher appears of "flesh and blood" in common with other mortals, and is all the more helpful because of kindred interests. As of Agassiz,*

> "His magic was not far to seek,
> He was so human";

so also it is true of the teacher. There is opportunity for expression of interest, for sympathetic direction, and for inspiration. As President Harper has well said, "The recitation is too expensive." We must find our way to an exercise of less passivity and of greater activity.

The Examination.—The examination is certainly a very important exercise, but it must be for the child and not for the teacher. The teacher who can not determine the value of a child's work, without resort to a detective exercise, is not very much of an educator.

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* "Of the few great men I knew face to face, in my own education, I place first Agassiz, with his abounding life, his fearless trust in man and God, and his vital interest in everything that man or God had done." (Jordan.)

The values of the examination are the opportunity to the child to apply the tri-square to his own work, to arrange his own acquisitions in a logical and correlated whole, and to express, not his weaknesses, but the best that is within him. In life the man is measured not by what he does not know, but by what he can do. In the same way the school, to be true to life, must give the pupil opportunity to arise to his best; and this is particularly applicable, in needed reform, to the examination exercise. I admit that there may be a limited value in the exercise where the books are all taken from the pupils, the maps reversed, and the teacher proceeds to run down the ignorance of the pupils, crammed and overstrung in anticipation of such supernatural ordeal; no matter how disappointing the results may be to the teacher, when she discovers the pupils only look at the marks, and not at the work itself, when the papers are passed back. Doubtless there may be some little value, although with difficulty seen, in the exercise of the heavy-laden and conscientious teacher, when in the cold of her room two miles from the school she proceeds, wearied and discouraged, to a post-mortem examination of this kind; but the results thereof can not for a moment be compared with the live personal exercises wherein the teacher sits down by the side of the child and then and there, with both pairs of eyes on the same warm paper, proceeds to point out in sympathetic words the places of needed correction and offers suggestions for the work's improvement. To this latter exercise must the examination come. In this there is no incentive to dishonesty. The work is alive. The pupil feels the influence of personal

value, accepts criticism in the spirit given, and while the work is warm, proceeds to its improvement. The work has become a purely personal matter and concerns no one else but himself and his teacher. The pupil's note-book, his developing thesis, and all his executed work then presents itself in his examination; and in that examination he has a right to bring into contribution every help that may possibly be available. The pupil who in his examination, with his books all spread out before him, with the maps on the wall, and the library close at hand, can not be trusted to do his work, has not got very far along in his education—*he is still in the primary grade.* How does the man arise to his best in literary endeavour? In the library, surrounded by the best helps he can master. It is then he produces his best creations. In the same way must the school examination lift itself to this higher level. It must give opportunity for the pupil to express his strengths.*

It will now be seen that in the school of laboratory procedure there is the more intimate contact between the teacher and the child—in other words, *association*; there is the more active turning of all endeavour on personal investigations—*discovery*; there is the co-ordination of the study period, the recitation and the examination into a unified exercise wherein the pupil can arise to his best—*education*; and there is the light-

* "Goethe, Schiller, the great philologists and philosophers before 1820, were never examined. If youth did not learn at the university, the injury was theirs. There was some trust in instinct, nature, and free growth in the forest as well as in the monotonous rows of the nursery, and more freedom for both pupil and school." (Hall.)

ing of the torch at the altar of related endeavour—*inspiration.* Is this not the great ideal of the educator—to make school life real; to give it human interest; to lift into the realm of discovery and creation? And how uplifting even to the little child, to express not simply the thoughts of other people, as Plato's slave, but to realize that his work also has a creational value, and that life is the better for his having lived. As Dr. Hodge says: "What an infinite delight it is for a child to tell a teacher something he did not know; to find out something, not seen as a puzzle, the key of which the teacher holds, but something the teacher actually wants to know!" Indeed, the child is very much like the older person at his best. Happy are those teachers who will condescend to thus live and learn with the children; and most unfortunate is the one who insists on seeing with one pair of eyes, probably spectacled at that, the infinite glimpses of beauty and of creation and of life that reveal themselves to a hundred eyes, eager, expectant, and observing.

This, then, is the function of the teacher—not to cram, to hear lessons, and to direct details—but to inspire, to suggest, to utilize, and to bless. A policy of this kind would reconstruct the school, would bring salvation to the so-called dullard and the dunce, and would lift every pupil into an atmosphere of higher achievement and ethical culture. Its realization lies directly before the school of to-day.

But the teacher, as the sympathetic friend of the child, owes him more than inspiration. The teacher must also be the child's counsellor and adviser. To this end systematic child-study has its high place in

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the school. The study of exceptional children, as outlined by Bohannon,* is eminently practicable. It is also exceedingly serviceable, because it at once encourages the teacher to be on the outlook for needs in children. With shame be it said, many a child has been punished by the school when his only fault was that he could not see some things which others saw well; when, perhaps, his hearing was intermittent, and the very fact that he could hear well at certain times led the teacher to suppose that he could hear well at all times. These and similar difficulties are not self-detected, and oft-times the man or the woman never discovers the difficulties which limit a fuller usefuness. Any direction of the teacher's attention to the finding of these exceptional cases leads to discoveries which must continue and systematize the entire field of observations of children. The system of child-study in practice at the Worcester State Normal School is particularly adapted to this line of investigation. On blanks, ever at hand, the teachers are encouraged to record everything of exceptional interest which they may observe concerning their school children. These returns are afterward grouped, and become the basis of much valuable study later on; but the greatest value is in the habit given to teachers to be on the outlook for exceptional needs. From this elementary beginning, child-study, under encouragement, goes forward to a more highly developed plan, which can not but become the basis of the scientific education of the child.†

* Pedagogical Seminary, vol. iv, pp. 3–60.

† The writer, in his work at Holyoke, Mass., reduced this plan of work to a card-index system, by which, in a moment of time,

The value of a life book for each child, with collation of data, from earliest infancy and systematically continued, is strongly emphasized. The excellent form prepared by Mrs. Charles E. Dickinson, for the use of

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valuable data concerning each one of six thousand children were at command. The first card in the series was devoted to Life Record, and gave the name of the pupil, his national blood, birth date, birthplace, parent or guardian's name, residence address, place (city or rural) where infancy had been spent, the names of school, grade, and teacher during each year of his school life, and circumstances of special history. A Health-Record Card gave name, age, general health, weight, height, past sickness and when, past injury and when, present difficulties, date, name of report, and adaptation of school plans. A Scholarship and Advancement Card reported special interests, special strengths, and special weaknesses, and recorded special directions and subsequent history. An Attendance-Record Card reported only those who were excessively irregular in attendance, and gave reasons for such liability, frequently under encouragement. A Special Interest and Aims Card described more fully the individual trends, interests, and aims of pupils, and recorded adaptations in school plans. A Special Observation Card reported special traits of peculiar educational interest, such as cases of double vision, mirror writing, phenomenal development in mathematics, arrested development, etc. An Unsatisfactory-work Card, with proper record, made the pupil so reported the subject of special diagnosis and treatment; and so on, with several other cards of the series. These cards were only three inches by five inches, and were tabbed and in colours to call attention to special cases.

Every pupil was represented in the Life Record and Advancement registrations. In order to make the work light for the teacher, the other reports of the series were made only on the discovery of something exceptional. It will be seen that some pupils by this means were represented by few cards, because their condition was fairly normal; other individuals, sometimes by a dozen or more cards of varied data. As the exceptional reports were made only as the occasion demanded, there was no accumulation of

the mothers of Denver, and also Miss Millicent Shinn's Study of a Child, are very suggestive.

The study of exceptional cases makes a definite, simple, and practical beginning for scientific child-study in any school. Indeed, it is remarkable how a study of exceptional cases and phases gathers in almost all that is important for the scientific purposes of the school. However, it is desirable that this study should gradually become comprehensive enough to fully represent every child. With the study of exceptional cases as a convenient beginning and nucleus, the work can easily and gradually be extended and enlarged until it comprehends all the characteristic data pertaining to each and every child. President Hall, in the round table conducted by him at the Saratoga meeting of the National Educational Association, outlined some very important work in child-study, which the teachers might, with profit, incorporate in their work. This presentation by Dr. Hall may be said to be the very beginning of the child-study movement in America. To this, he and also Dr. Burnham, in subsequent years, have added some very important suggestions for the

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work for the teacher at any time, and the collection of vital statistics was a growth from a small beginning to a collection of more than thirty thousand cards. Indexed as they were, any child's record could be found in a moment of time; it was always subject to revision; it was capable of indefinite expansion; and the cases needing special attention stood out in colours securing instant recognition.

This reference is given merely for illustration. Perhaps the system should be more fully described. The plan could be easily enlarged on; but this was intended to be of instant service and to avoid, in the massing, the loss of valuable individual returns.

guidance of the work. Many excellent plans for child-study are operative in different schools of America.*

The values of association and child-study have been discussed. It now remains for us to consider one more factor in the trinity of the teacher's function. It is that involved in the discovery of the child's future. Not that the teacher should determine the vocation for which the child is best fitted, any more than should the parent; but it is the supreme mission of the teacher to hold up to the child a vision of life, so that the child, in his lack of personal experience, may have the data necessary for his own generalization and then the fostering care which makes possible the realization of dawning ambition.

A system of school savings, with the definite object of sustenance during college training, should be a part of every school. Such a system would attract from the very entrance of the child into the school, or better still at birth, an accumulation of savings which, at compound interest, would do much toward guaranteeing a liberal education to every child. It would also be a centre of bequests, which would endow every child's college opportunity, the same as college chairs are now sustained.

How about the markings of pupils? How are their records to be kept?

There should be no mechanical markings whatever. Pupils should be taught to work from pure love for the work and because it is right. All percentages, rankings in scholarship, honours, and other discriminating re-

* L. N. Wilson's Bibliography of Child Study.

wards are false to the spirit of education and should have no place in the school. Moreover, who made the schoolman so omniscient that he can justly take into consideration all the differentiating circumstances of life, when he attempts to mark on a mechanical scale the infinite variations of mind, which can not be measured?

As to records, certainly the pupil is entitled to some definite credits on the books of the school. I have found it an excellent and all-sufficient practice to give each child at the end of the year, or earlier if he withdraws, a sheet of specifications telling in plain English just what work he has satisfactorily covered in each department of work. This advancement sheet becomes a definite basis for his continuation of work in any school where he may appear. A duplicate sheet, properly indexed, is left in the possession of the school. A collection of these sheets, together with other child-study data described, in the process of years constitutes the life history of the child.

What is the character of the card reports sent to the parents?

There are no regular reports sent to the homes. In the first place, the teacher and not the parent is responsible for the school progress of the child. In the second place, if the parent wishes to ascertain information concerning the work of the child, the school office or school room is the proper place to gather such information. Or, if the teacher desires consultation with the parent, a visit to the home, or an invited conference at the school, will bring about a systematic relation not otherwise possible. Regular conference hours are al-

ways valuable. There are certainly many printed suggestions regarding food, sleep, exercises, etc., which will be much appreciated by the parent; but the school should never antagonize the home by unloading deficiencies and responsibilities which belong to the school.

Ordinarily the most unhappy and non-ethical day in the school is the day when the usual monthly or term reports are given out. No teacher gives these out in the morning, because they would thus wreck the entire day. Usually they are passed to the pupils the last moment in the day's session. Why? Because the reports embody an element of injustice. The teacher, in her impotence, has attempted what can not be done—the measurement of creative mind with a scale that can not comprehend all the differentiating circumstances of life. It is no wonder that there is rebellion, and that the teacher seeks to escape through opportunity for the school to recover its equilibrium overnight. The very fact that the reports of different teachers differ so greatly is evidence of the ineffectiveness and injustice of the plan.*

* The writer once appeared at a large high school for lecture purpose, unfortunately or fortunately, on the day when the usual term reports were to be given out. In expectation of such visit, it had been decided by the faculty that it would be advisable to defer the giving out of the reports on that day, in order that the school might be saved from this non-ethical disturbance, and thus make a better appearance. As a student of education, the writer found something of special interest, and concluded to remain over another day. The faculty met, as one of the teachers afterward said, and decided that the reports had best be postponed another day. Innocent of all knowledge of this, the visit was protracted over a third day, when the affair became so ridiculous

Would you have no competitive exercises?

Yes; all life is full of competition; but it does not thrive best in the case where all people do the same thing in the same manner and in the same time. The pupils in the school always know who are doing the best work, and are actuated accordingly. This is the natural competition of life. In this school it is free from overtension and bitter rivalry, and it is healthful in kind.

Granting that this plan of work would become very much more interesting to the pupil, how about the interest to the teacher?

There is always an inspiration to a teacher in original work. It is not teaching itself that takes the life out of the teacher, but routine, the lining up of classes for uniform results, and the requirement of results where there is little interest. President Eliot, in his article on uniformity in schools, remarks: "I do not know how a woman teacher of a class in a grammar-school grade, who goes year after year through the same prescribed routine with pupils previously made as uniform as possible, can maintain an intellectual freshness and enthusiasm in her work for more than five or six years." Gladstone used to say that the road leading into London which killed the most horses was the road of the dead level. Give teachers opportunity to climb the heights and their work will respond in initiative, in vigour, and in inspiration. "The letter killeth but the spirit giveth life."

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that the whole matter was explained and the reports were issued, with the result which the teachers anticipated.

Should there not be more men teachers in the schools?

The schools will always be taught largely by women, and properly so, because of woman's finer intuitions, greater faithfulness in details, and exceeding patience. However, the child should come in contact with both kinds of mind and character. This applies, more or less, to all grades of instruction, but particularly to that of the adolescent period. Besides, teachers of opposite sexes are corrective one of the other; they are complemental. Men, as a rule, are more original in planning; women, as a rule, are more successful in execution.

What opportunity should be given teachers for personal and professional improvement?

The school should give teachers the most liberal opportunity. 1. Escape from routine and opportunity for the delights of original work. 2. The federation of the teachers in the development of original plans. If there is value to the pupil in the presentation of something which the teacher did not know, there is also inspiration to the teacher in being given initiative. 3. The school itself should have classes for the training of teachers, made eminently possible by the work being departmental and by our plan of centralization. 4. Teachers should be paid salaries enabling them to make professional improvement, but these salaries should be discriminative. 5. There should be opportunity to gain from the experiences of the best schools in other cities through observation; or better still, by association in the same school with co-workers who represent, in their selection, the best personnel and the best methods of

such other cities. 6. Teachers of special merit should be given their seventh or sabbatical year for rest or observing travel, on full or part salary. Think of the compensating returns to the Chicago Institute from sending selected teachers abroad for a year on full salary! The way to get the best value from teachers is by giving them opportunity and appreciation. The city which does the most for its teachers is the one which has the best schools. It is the old story of the nobleman's treatment of the two brothers, Date and Dabitur.

CHAPTER XIII.

THE RE-ENFORCEMENT OF EVOLUTION.

If, in the long struggle of the past, life from its lowest forms has reached anything of elevation and improvement, it has ever been by the innate strengths of individuals and the circumstances which have favoured their development. This, from earliest beginnings of evolution, has been true of all the forms of life antedating man. It is also the fundamental principle which has given us our finest flowers and fruits, and our choicest examples of domesticated animal life. The culture of man presents no exception, but, with multiplied re-enforcement, illustrates the same universal law in the elevation of universal life. But man, while starting in the school of Nature, has frequently wandered away into the night, reaching, however, with the succession of better days, upward into the light.

The old Hindu philosophy, with all its cold, unproductive learning, cared nothing for the individual. Its pantheistic doctrines taught that man must submerge his personal identity and be lost in the mass. The reform of Buddha brought no light, but sank the man still deeper in his self-abnegation.

In the old civilization of China, as in the present,

there was no liberty, no spontaneity. Dynasty after dynasty passed away, during which no individual ever saw his sovereign, but still lived on in passive and grovelling submission.

In old Japan, however, this was not so. The recognition of individuality, from the remotest historical ages, explains the strength and genius of this remarkable people. Says Uchimura: "We were not taught in classes then. The grouping of soul-bearing human beings into classes, as sheep on Australian farms, was not known in our old schools. Our teachers believed, I think instinctively, that man (*persona*) is unclassifiable, that he must be dealt with personally—i. e., face to face, and soul to soul. So they schooled us one by one, each according to his idiosyncrasies, physical, mental, and spiritual. They knew each one of us by his name. And as asses were never harnessed with horses, there was little danger of the latter being beaten down into stupidity, or the former driven into valedictorians' graves."

The Hebrews made education compulsory, and perhaps preserved their original identity more than any other people. However, they opposed the loss of the individual in the mass, as evidenced by this rule in the Talmud: "If the number of children does not exceed twenty-five, the school shall be conducted by a single teacher; for more than twenty-five, the town shall employ an assistant; if the number exceeds forty, there shall be two masters. . . . After the age of six receive the child, but load him like an ox; however," continues the Talmud, "children should be punished with one hand, but caressed with two."

Spartan education aimed to produce the best individual, but entirely for strength of body.

Athenian philosophy sought the highest culture of the mind; but "every free man stood on the backs of nine slaves." For the tenth man who was held aloft, the best culture in reading from Homer, in writing, grammar, gymnastics, mythology, and music was presented. Socrates's method was entirely to originate individual investigation and reasoning, to which he added the inspiration of approachableness and association. Plato's Republic, while eliminating all but the superior souls, was essentially for the best culture of the state through the enrichment of the individual. Says Plato, "Is not that the best education which gives to the body and to the soul all the beauty and all the perfection of which they are capable?" Aristotle, sometimes said to have been the most learned man who ever walked the earth, while like Plato he planned only for an aristocracy, nevertheless, for his limited few, presented an education of health which led to the highest efficiency of the individual.

Quintilian remarks, "The desire of learning rests in the will which can not be forced," and "we can scarcely believe how progress in reading is retarded by attempting to go too fast." Seneca taught, "The end is attained sooner by example than by precept"; and Plutarch declared that "the soul is not a vase to be filled, but rather a hearth which is to be made to glow."

The early Christians held the doctrine of the liberty and equality of all men; that the soul is free and owes allegiance only to God.

Agricola wrote, "If there is anything which has a

contradictory name it is the school, the Greek name for which means leisure, and the Latin, *ludus*, play; but there is nothing farther removed from leisure and play."

Sacchini urged, "Do not let the favouring of the higher classes interfere with the care of meaner pupils, since the birth of all is equal in Adam and the inheritance in Christ."

Rabelais wished his pupils to study "through playing and recreation"; and exclaims, "Why! women and girls have aspired to the heavenly manna of good learning."

Montaigne insisted that the child should exercise choice, and that Latin should be taught by the mother-tongue method. He said, "Knowledge can not be fastened on the mind, it must become part and parcel of the mind itself"; and also complained, "There is a great tendency in the scholastic world to underrate the value and potency of self-education."

"In all the operations of Nature," said Comenius, "development is from within," and "Everything in the intellect must come through the senses. (*Nihil est in intellectu quod non prius fuerit in sensu.*)"

Plautus exclaims, "An eye-witness is worth more than ten thousand ear-witnesses."

Nicole insisted that "the purpose of instruction is to carry forward the intelligences to the farthest point they are capable of attaining."

Fénelon said: "The less formal our lessons are the better. . . . I will give no rules at all; it is sufficient to give good models. . . . I have seen certain children who have learned to read while playing." If a given

study was distasteful to the young Duke of Burgundy, Fénelon passed immediately to something else.

Locke insisted that all studies should be "attractive studies."

Rousseau's Émile was to live a life of Nature. "I hate books," said Rousseau. "They teach us merely to speak of things we do not know. . . . Let him always be his own master in appearance, and do thou take care to be so in reality. There is no subjection so complete as that which preserves the appearance of liberty. It is by this means even the will is led captive. . . . Everything is good as it leaves the hands of the Creator; everything degenerates in the hands of man." Of Émile, now twelve years, he says: "Now is the time for labour, for instruction, for study; and observe, it is not I who make this choice; it is pointed out to us by Nature herself. . . . Things! Things! I shall never tire of saying that we ascribe too much importance to words. With our babbling education we make only babblers."

Condillac taught that the child in his education must do "that which the race has done."

Kant contended: "The aim of education is to give the individual all the perfection of which he is capable. . . . The best way to comprehend is to do. What we learn the most thoroughly is what we learn to some extent by ourselves."

Pestalozzi's school was life, with natural objects and no books. He it was who insisted that the soul must be developed through "what is within," and that "the individuality of the child is sacred." "Man," said Pestalozzi, "it is within yourself, it is in the inner sense

of your power, that resides Nature's instrument for your development. I myself learn with the children. Our whole system was so simple and so natural that I should have had difficulty in finding a master who would not have thought it undignified to learn and teach as I was doing."

Froebel gathered up the teachings of the past and put into operation a great system of education, the central principle of which was "self-activity." The kindergarten, of which he was the founder, is a noble exposition of the harmony which may correlate, in education, the individualistic and the socialistic interests of man.

Roger Ascham, sometimes called the Father of School Methods, says: "Beat a child if he dance not well and cherish if he learn not well, ye shall have him unwilling to go to the dance and glad to go to his books."

Herbart left a priceless legacy in his doctrine of interest. He also taught: "The teacher ought to make it a point of honour to leave the individuality as untouched as possible, to leave it the only glory of which it is capable—namely, to be sharply defined and recognisable even to conspicuousness, that the example of the individual may not appear insignificant by the side of the race itself and vanish as indifferent. . . . It is the individuality and the horizon of the individual determined by opportunity which decide, if not the central, at least the starting point of advancing culture."

Shakespeare sums up a world of philosophy when he says:

"No profit grows where is no pleasure taken;
In brief, sir, study what you most affect."

Milton writes, "Thus to be taught in school to appear to know and to speak as if his knowledge was real, when he is conscious it is not, he is trained into the habit of untruth."

Humboldt asserts, "Governments, property, religion, books, and home are but the scaffolding to build men. Earth holds up to her master no fruit but the finished man."

Says Richter, "Individuality is everywhere to be spared and respected as the root of everything good."

Herbert Spencer declares, "The discipline which does good to the mind is active, not that in which it is passive"; and, "Any piece of knowledge which the pupil has acquired, any problem which he has himself solved, becomes, by virtue of the conquest, more thoroughly his own than it could else be"; also, "Humanity has progressed solely by self-instruction."

Says Mills, "The worth of the state in the long run is the worth of the individuals composing it."

The great Agassiz, at his summer school on the Isle of Penikese, taught: "All knowledge is individual. It must be your own and not that of anybody else. Your having a firm memory will not suffice; you must assimilate, as you digest food. We must find out facts for ourselves, and when we teach we must teach our pupils to find out for themselves. It is the bane of our schools to confound men with knowledge. By this system a whole class of powers is allowed to be dormant."

Horace Mann remarks, "Unfortunately, education among us consists too much in telling, not in training."

Quick asserts, "Spontaneity and self-activity are the necessary conditions under which the mind educates itself and gains power and confidence."

Says Dr. William T. Harris: "Inasmuch as the child is self-active, and grows only through the exercise of self-activity, education consists entirely in leading the child to develop this power of doing. Any help that does not help the pupil to help himself is excessive."

John Dewey: "The unity of the self is the will. The will is the man, psychologically speaking. . . . Only by being true to the full growth of all the individuals who make it up can society by any chance be true to itself."

President Charles W. Eliot: "The main interest in the teacher's life is to be found in studying and developing the infinitely various mental and moral qualities of his pupils. . . . True success consists in making children as unlike as possible."

President David Starr Jordan: "The growth of individualism in education is the most promising feature in the social outlook of America."

President William R. Harper: "Individualism, coordination, and association are the keynotes to future progress along educational lines."

President G. Stanley Hall: "The only safety lies in the study of and better adaptation to the nature and needs of childhood. Strength lies in individualization. Progress is now in differentiation."

Is not development along the lines of differences and of strengths the ladder on which all evolution has climbed to its present heights in the plant and animal worlds? Does not the history of education show that

the same operating law has been the foundation of all progress? Has there been any other way in which achievements have been made in invention, science, art, or industry? Does not evolution reach its supreme height in the doctrines of Christianity which establish the claim that the soul is free, that character is made only by individual choice, and that the expectation from different individuals is according to talents intrusted "to every man according to his several ability?"

Are we not now ready to formulate our definition that *education is the evolution of the ego in response to environment?*

CHAPTER XIV.

MUNICIPAL DIFFICULTIES AND ORGANIZATION.

THESE specifications are applicable, with modifications and adaptations, to a system of schools of whatever size, large or small. In the serious consideration of the plan, certain municipal questions will appear which may as well be here asked and answered, and perhaps best in personal form.

Would not the cost of the individual system be much greater than in schools as now conducted?

The cost would not necessarily be greater. The individual system equalizes the attendance of pupils in the various rooms. By the present plan it is impossible for a small seventh or eighth grade to relieve an overfull second or third grade. Frequently a greatly overcrowded building has several rooms where the attendance is light. By individual organization the attendance is distributed so that the various rooms have numbers more nearly proportionate to working needs. Also, the smaller classes disappear, because these few pupils can find longer periods of time while working with pupils of different advancements in a common laboratory hour. Again, the laboratory method makes shortcuts in the school life, so that there is the possibility of saving the expense of one or two years in the ordinary

education of the child. There is one item of greater cost, and that arises from many pupils remaining in school longer because the work better fits their individual needs. This item would be considerable.

Would not the reduction in the number of pupils assigned to each teacher (I believe you recommend twenty-four as an ideal number) greatly increase the cost of the schools?

The present number of pupils to the teacher is too large by any plan. As already intimated, the individual plan can and does handle as many pupils well, as is done by any other plan, excepting that, with the individual plan, the activities are more normal and show needs more readily than is the case as schools usually are. Again, many schools in their kindergartens, high schools, and other grades here and there, do not even now have more than twenty-four pupils to the teacher. It is simply a question of just extension of the same policy to other equally deserving pupils in the schools. The schools of Switzerland and several other countries in Europe do not have more than twenty-four pupils to the teacher. Why can not America do as well?

Your plan calls for expert teachers in every grade; for the vouchsafing to every child the same quality of instruction he might have in the high school or the university. Would this not be very expensive?

The measure is advocated purely in the interests of economy.

The plan of one-story buildings in order to get natural illumination from overhead, without shadow and with equal distribution to every pupil, may be very suggestive; but how could a city get room for these one-

story structures. As I understand it, our present system of sky-scrapers has been forced by inability to get sufficient ground.

The horticulturist has no trouble in getting room for his one-story green-houses. The man who raises poultry on a large scale is equally successful. In Paris, which is a city of solid humanity six stories high, the schools have much larger ground space than in America.

You advocate a system of evening schools. It seems to me we have all we can do now to find money enough for the day schools.

Why should we not have the evening schools? If one hundred or one thousand young people can attend better in the evening, why are they not entitled to as much accommodation as an equal number of those who are now cared for in the day school? Why should not those who labour all day to support others receive as much consideration at the hands of the city as those who are supported by others? Given the buildings and the equipment already provided, the plant should reach the highest possible degree of service. With equal opportunity to do good, the evening school can be maintained at small cost compared with the day school. The same thing is true of the vacation school.

But is there much demand for an evening school? Will the young people attend?

That depends entirely on the kind of school presented. The city of Springfield, Mass., on opening its doors to evening high-school pupils, found the evening enrolment equalled the day enrolment the very first year.

You propose that the high school shall offer its ex-

tension courses; indeed, that it shall be a community school. Is this expedient?

Why not? There are hundreds of older people in the community who would prize the helpfulness of the school in bringing to them opportunity otherwise exceedingly limited. The enormous sums of money now being expended in high-school buildings and equipment can have their justification in no other way. The school must comprehend the entire educational needs of the community, and do all the good it can.

I understand you have said that the high school in the near future will assume the work of the college. Will this be wise?

The larger high schools will eventually assume the work of the college. Their equipment even now justifies this. Whenever the number of pupils in the high school is so large that the post-graduate work of its students can be performed at less expense at the home than by sending them away to some central college, then such diversion of expense on the part of the State will be entirely legitimate and expedient. For instance, I know of a city of one hundred thousand inhabitants the high schools of which graduate this year 266 pupils. With this large number why can not the city furnish the college education of these students at home cheaper than they can get it by going elsewhere? This, however, will only apply to the larger high schools. The smaller schools certainly must still send their pupils away to college.

What about the book question? Do you believe in free books?

In new communities, where the constituency is fluc-

tuating, yes. In settled communities, the schools should furnish many library and reference books; but the pupil should own his own standard text-books as a matter of permanent possession, to be purchased by him, or else presented by the school when the study is completed. The material used by the pupil, and also books of transitory value, might still be furnished by the school. The school should also suggest lists of books for the child's individual library. The pupil who graduates from the school without the ownership of a book is unfortunate.

I am told that you advocate the school owning its own printing establishment. Why?

Given the coterie of experts as recommended in our plans, there should be a more effective means of preparation of helps for the use of pupils, and also for the encouragement of original experiments, than the present plan presents. I do not mean that the school should print its own books; but there should certainly be more liberal opportunity for certain experimental endeavours on the part of the teachers to find a convenient expression. Then, the school should issue many competent suggestions to the home. Yes, the larger school should also be a publishing institution. This, however, would not necessarily be added cost.

To what extent would the people appreciate a school so organized?

Given sufficient time for effective operation and the fruitage of results, there is no question concerning the popular favour attending such a school. The American people are looking for results. Whenever they see the products of the school are better health, more interest

in study, freedom from evening work, shorter time in the covering of the courses of study, and more evidence of the continuous student, the people will not be slow to express themselves.

"It seems to me there is little question," remarks some municipal executive, "concerning the superior advantages of a school so conducted; and I am surprised to find that its expenses would not be materially greater. But I am particularly interested in the more radical features involved in the idea of a general school farm or park, where, with the massing of facilities and opportunities, you advocate the centralization of all the schools of a town or city. Now what would be the cost of such a plant?"

The cost would not be so much as might at first be supposed. In the smaller city it certainly would be no greater. If provision could be made for the plan in the early growth of a city even larger, the savings would be very great. But the project is not a hopeless one in even the developed city. For instance, here is a city needing buildings at the present time, the erection of which would require the issuing of bonds for half a million dollars. This amount and the revenues arising from the sale of valuable properties in the heart of the city, would no doubt meet all, or nearly all, the costs of the school farm and a complete series of new buildings erected according to the plan proposed. The reduced costs in running expenses, arising from centralization, would abundantly make up the difference. But there would be no difference to be made up, excepting as the city would probably deem it wise to erect better buildings than the average ones now housing the children.

What would be the size of the farm for a school plant of this size?

Preferably not less than ten acres for each thousand children; for a city of one hundred thousand people, not less than two hundred acres.

Is it absolutely necessary, under this plan, that all the schools should be moved to a single plant?

By no means; but the advantages arising would be so superior that all children should be equally benefited. In a city of one hundred thousand inhabitants there might be four school parks or farms, providing for five thousand children each, instead of one for twenty thousand children. Or the parks of the city might be utilized for school purposes. The centralization of all schools on a single plant, however, would be far more economical and it would not be specially inconvenient.

How would you meet the expense of the electric-car service, with which you propose to gridiron a city and transport the children?

By the city owning and operating its own car service; or by contract for school service at certain hours; or by reserving in the franchise the privilege of free transportation of school children. This could be as easily done as to require a corporation to make a three-cent fare for adult persons, as is now being done in some cities. The car service would be heavy at certain hours of the day, but the cars could be run in trains, with the children in transit protected by closed rails.

But how about the time lost in going to and from school?

It is probable that the average part of a city of 100,000 inhabitants could be reached from the school

in fifteen or twenty minutes, and any part, excepting very remote ones, in thirty minutes. Children probably spend nearly that time in transit to the school even now. Besides, children attending the Horace Mann School or Felix Adler's School in New York, or Colonel Parker's Chicago Institute, or Pratt Institute in Brooklyn, do not feel that even an hour is too much time to spend in going to a superior school. Pupils are willing even now to pay car-fares to a central high school, because of the greater advantages arising from centralization. In the same way, the advantages would be better in any grade of school. Besides, the ride itself is a good exercise. What a happy sight the school trains would be each day to people who ordinarily fail to appreciate the magnitude of school interests! It should be remembered also that the children would be given their dinners at the school, and thus make only one trip each way.

How about the number of men required to run such a car service? Twenty thousand children would require from fifty to one hundred trains of three or four cars each.

If the city owned and operated its own car line it could be understood the regular service would be light during the limited time of heavy school transits. Or the other help of the city could be directed in this channel at specified hours. Or, as our proposed plans contemplate a post-graduate department, the young men in college training could be partly supported in their education by this moderate service. But the service would necessarily not call for so many trains. Some of the children would live near the school farm. The city

population would soon centre around the school, excepting in cases of wealthier families. Again, as our several schools would now be better classified, the hours of session would vary so greatly as to permit the distant cars to make two trips, and the near ones three or four trips. A little system and experience would soon solve all the difficulties. In the cases of towns and the smaller cities, where past history shows the best schools have ever been, there would be no great difficulties of this kind to be solved.

But how about the cost of the school dinner? Would this not be a very great expense?

Certainly, but not an added expense to the parents, for these children must be fed somewhere, and with centralization it could be done much cheaper and more conveniently than in so many homes.

Would not the massing of children together be a serious objection?

Not at all; we even now have many instances of one thousand children in a single building, and that on a piece of ground scarcely larger than the foundation of the building. Think of the pure air and other advantages when that number of children have ten acres!

Your plan, however, provides for the children of a city of 100,000 inhabitants—that is, approximately, 20,000 children.

For purposes of illustration that is true, but not all on one piece of ground of ten acres. Even in that case, the massing would not be greater than it now is. The plan proposed calls for an approximation of ten acres for each one thousand children. If the city has

5,000 school children this would demand four separate sections of a common tract, each ten acres or more, and carrying each its series of quadrangle buildings, adapted respectively to the particular functions of the play-school, the primary school, the intermediate school, or the high school. Should the school population be 10,000, 15,000, or 20,000, each series of quadrangle buildings would be proportionately increased; or, for the lower schools, duplicate plants could be built adjoining the central plant, or in different parts of the city. Think of the free play room, the pure air, the abundant sunshine, the gardens and the miniature world presented by such a plant! Or even supposing the massing of from 5,000 to 20,000 children should be accomplished on smaller space, it would be infinitely better to accommodate them on a single plant where everything could be absolutely sanitary, than to mass them, as is generally the case now, in crowded streets, against aggregations of older people, alongside of breweries, stables, and other objectionable places. But such massing would not be under the same conditions; for with our school plant each child would have ten times as much individual space as he now has. If it is a good thing for children to escape from the city to the country for a time now and then, it certainly would be a proportionately better thing for them to have their entire school life amid such delightful surroundings.

What would be the advantages in the equipment and grading of pupils?

The advantages would be very great. At the present time the expense is very large, because each building must have its separate equipment, and of a different

kind for each grade. With centralization one half of this money would equip the schools better than many a college now is. In classifying and grouping the pupils there would be the possibility of fitting almost any need.

There are also other very superior advantages. The schools would have the benefits of absolute sanitation, with adequate drainage, abundant pure air, purifying sunshine, wholesome water, and medical care. The park would constitute a miniature world. The equipment would be so centralized as to enormously lift every department of work. The pupils would be grouped according to kindred tastes in a way not possible under the present plan. All school work would take on the delights of personal discovery. The teachers would be in sympathy with an original plan of education which would call out the best within them. The opportunity of teachers of associate interests to meet in frequent conferences, or with the superintendent or supervisors, or to see other model work, would be abundant. The administration would be centralized and rendered exceedingly effective. The gardens would be a cardinal feature of the school. The school park, in short, would be the pride of the city and the Mecca of educational pilgrimages from all over the world.

How about the school government? Would it not be largely military?

Not necessarily so. It would be purely a question of the director-general and his versatility. Some of the largest schools in the world are delightfully conducted with very little apparent discipline. The fact is, children readily respond to the right course of action

when given responsibility and trust. As a rule, a large school is more easily governed than a small one. But in our school the children are not really massed more than under usual conditions. Beyond that the ability of the director-general is very much exercised even in our present schools, but so widely scattered in its operations that it does not become manifest. There are plenty of schoolmen who could direct the operations of 20,000 school children on a school plant of this character with perfect ease.

Still you admit, do you not, that such a school system would cost more money? With so many other departments of city government, such as street service, lighting, bridge-building, police department, water department, pauper department, fire department, and legal department, each calling for money, how can this additional cost for schools be met?

How can any other department be compared with the school department? Is not the entire life of the world centred in our children? Is not our first care for their best culture? More than this, are not all these other agencies, important as they are, accessory to the one great fundamental question involved in the highest interests of the children? How can these other departments be put on the same level? And yet, strange to say, it is usually much easier to get the best of modern appliances for these other departments than for the school.

Yes, the school of the twentieth century will cost more money; but it should be our pride that this will be the case. There never was a time in the history of the world when the people were willing and anxious

to do so much for their children as now. Think of the sacrifices of fathers and mothers to-day that their children may be happy, as typed in expenditures for pianos, bicycles, better clothing, and general opportunity—things which a generation ago were not even dreamed! The father who toils in the shop, office, or store, the mother whose brain and fingers are busy all the day, know no sweeter reward than that this loving sacrifice is made that their children may be rich. It is the old, old story of the world being lifted by vicarious sacrifice. Face to face with the promise of better things in the children's education, the people are ready for any improvement or cost which may come. What, after all, are we living for, if not for our children? Why toil and sacrifice and expend if not for the greater future of the child? *The people are not tired of taxation for schools, but they are tired of taxation without returns.**

What are the greatest hindrances to the realization of an ideal school?

The changeable constituency of school boards, the slavish organizations of schools almost entirely for the home teacher, the large number of children given to a single instructor, the gradation of teachers by years of service, the unbusiness-like method of scaling the salaries with no recognition of special merit, and the large amount of routine work forced on the school executives.

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* When the writer was once spending several delightful days in visiting Dr. Hailmann's magnificent schools at La Porte, Ind., he asked a citizen on the street how the people met the expense of such good schools. "Why," replied the citizen, "the schools of La Porte cost more than any others in the State of Indiana, and it is the pride of the people of La Porte that it is so."

Are not our school buildings among the best in the world?

These are not essentials but accessories. Buildings are the easiest things to get. As a rule, so much money is spent in buildings that there is nothing left for the school. There is many a citizen who can see a fine school building who can not see a child.

But, our superintendents; we have no trouble in getting capable men for this important office.

President Eliot, in a personal interview, remarked to me, "The graduates of Harvard University are not seeking the superintendencies of schools." President Harper, of the University of Chicago, has also said, "The fact that our superintendents of education, whether of nation, state, or county, have little or no authority and are chiefly statisticians, is a sufficient commentary on any alleged system." It is also true that the high-school principal, as a rule, is more of a man of culture than the superintendent of schools. The superintendent, under the present organization of schools, has not time to be very much of an educator.

What do you think of life tenure of office for teachers?

Teachers, in the discharge of faithful duty, ought to be protected by having their appointment centralized in the hands of those who know their work and who will advise them at any time. As far as tenure is concerned, the poorest schools in this country, at least in the cities, are those which approach most nearly to the teachers' life tenure of office.

In what way should school boards be chosen and organized? What is the best form of school control?

The best system of school control is in Colorado.

There, excepting in East Denver and in small districts, the school board consists of five members, each chosen for five years and by direct vote of the entire city. The school election can not be on the same day as a political election. As only one new member is elected each year, ordinarily four-fifths of the board is composed of experienced persons. The women have the right of franchise in Colorado, and very largely exercise it in school elections. This removes the school elections from politics, avoids radical changes, and rests the school control largely with those who are most interested.

To this plan I would add the appointment by the Mayor of a nominating committee of one hundred representative citizens, with equitable representation to all parties and creeds; the presentation of ten names for the selection of one by the voters at Australian ballot; and thirty days of legal announcement. A civic league, organizing all the best men in the community for effective enforcement of the law, and pledging each one to honour a call to office should occasion arise, would be a valuable adjunct. Such an organization now exists in Brookline, Mass.

Who should appoint the teacher, the school board or the superintendent?

With an organization like that recommended, the appointment of teachers should be made by the school board on the superintendent's nomination. The superintendent always needs a cabinet of advisers. On the other hand, the competent superintendent, under this plan, would always have his policy and wishes respected.

What should be the character of the superintendent needed for such a school system?

The superintendent should be a man of sterling character and great natural love for children. He should be well educated, particularly in physiology, neurology, and psychology. He should have little to do directly with the business details of the school; but officials having these important matters in hand should be under his appointment. He should have ample time for personal and professional study, for mingling with people, and also for inspection of school systems elsewhere. His offices should be in the centre of his school system, with adjacent conference rooms, libraries, and psychological laboratory. He should have assistance sufficient to enable him to devote himself entirely to the larger problems of the schools, with the greater part of his time spent in the presence of the children. The correlation of other administrative work should be so intimate as to give instant supply of every detail in order to carry into effect every improvement or corrective initiated by the superintendent. There is nothing which so hampers a superintendent in the development of original work as inability to foresee or depend on details of equipment and other accessories at the exact time of pupils' need. Given to the superintendents of America freedom from political, designing, and inexperienced environment, and opportunity for wide observation, personal study, immediate correction of weakness, and effective extension of plans, it would be wonderful how the change would accrue in the rapid improvement of schools.

CHAPTER XV.

SOMETHING FOR THE PHYSICIANS TO THINK ABOUT.

"Give me health and a day, and I will make the pomp of emperors ridiculous." (Emerson.)

THE educator who wishes to reform the public-school system does not need to go very far out of his way to get the generous assistance of the medical profession. Significant it is, indeed, that of the 35 eminent physicians who answered Dr. Stuver's question,* "Do you think our present comprehensive course of study is best calculated to develop the highest physical and intellectual powers of the child?" 2 replied yes, 32 no, and 1 only was doubtful. The purpose, then, of this discussion will not be to convince the doctors that the school system is wrong, but to present a reorganized plan for their consideration; for, as Horace Mann has well said, "Where anything is growing, one former is worth a thousand reformers."

Is it too ambitious to say that Chadwick's statement † that "a city may be built with any given mor-

* How does our School System influence the Health and Development of the Child? By Dr. E. Stuver, of Fort Collins, Colo.

† Address on Health, by Edwin Chadwick, C. B., in Transactions of National Association for Promotion of Social Science.

tality rate," may be paraphrased to read that a school may be built with almost any degree of health? I am perfectly aware that there are many primordial conditions of health over which the school has little control; but, as a schoolman, I am also ready to admit that the school has never tried to ameliorate many of these conditions. The capable leadership of the school, with helpful meetings for conferences and with printed suggestions concerning the food, sleep, clothing, exercise, and general welfare of children, will meet with a response and appreciation from the home little dreamed of by the schoolman who knows not the home. Health is very much a matter of command. It is the natural thing to be well; the unnatural, to be sick. People do not have health because they do not command it. As long as the prize-fighter can go into training and, as the result of a few weeks of careful work, absolutely command his health, so that when he enters the ring the glow of conscious health will not recognise even the possibility of a defeat, it certainly is time for people who profess better things to pause and consider what they are doing to control their own health and that of their children. Good health is not the result of chance, but of obedience to physiological law. "The wages of sin is death" is never more fully realized than in the case of the body, which is the Temple of God; and, conversely, "length of days and long life" are the reward of those who keep the commandments.

Therefore, it seems reasonable to premise that the value of a school is determined by the extent to which it promotes good health as the fundamental condition of effective work and happiness; that the child has an

inalienable right to expect, not simply that he may gain his education without the sacrifice of physical health, but that the school will guarantee to him good health as the product of his education.

The position, then, taken by this discussion is that the prime requisite in the education of a child must be health; that good health is subject to command; and that the school must be measured by the extent to which it contributes directly to this realization.

With this postulate the contention then is that the growth of the child in body and mind must be free. Certainly there is the need of the sunshiny presence, the wise counsel, and the capable direction; but the fundamental operations of the growing child must be spontaneous.

The child must not be robbed of his natural instincts for play, and his work will always be more educative when related to play.

In his food he must be freed from hot breads, pastries, and confections, and fed the elements best calculated to make him strong. This will not speedily be his portion, unless there is a better correlation of the home and the school. There is no one place where modern science has made so little contribution as in the kitchen, and yet the home is earnestly seeking capable leadership which it has not found.

The child must have his longer hours for sleep, and in his sleep must not be disturbed by worry carried over from the pressure of the day. Camerer has shown * that a child of ten years is 700 grammes lighter

* Donaldson's Growth of the Brain, p. 88.

and 2 centimetres taller in the morning after a night's rest, and that during the day he is losing in stature and growing in weight. The child's full rest for this normal recovery from daily stress must be protected. In addition to this, the practice of rushing off to school with little breakfast, to be followed frequently by a cold, inadequate lunch at the noon hour, can not be too severely condemned.

The centralized school plant which I have presented will probably suggest some things which can be immediately incorporated into the policies of existing schools as local conditions will permit. If not, then the question ought to be forced by the adoption of the larger plan, which will guarantee these important provisions. The plan provides a campus of ten acres or more for each one thousand pupils. What a shame it is that the modern school has no place or time for the old-fashioned free-play recess! Can the abortion of five minutes, with restrained movement in the school room, be accounted as a recess? Most certainly not. Of the 105 prominent educators and physicians answering Dr. Stuver's question, all but four strongly favoured the open-air recess and spontaneous play. But even the old-fashioned recess can be gloriously lifted by the general play with the association of teachers, as in the schools of Andover. Then the return once more to contact with the soil and care for growing and living things —what a field offered by the school gardens! Pure air, abundant and free on the playground, and taken in at higher levels, flooded without draft through the rooms, to be removed again in such quantity that each child may have his 3,000 cubic feet per hour; an ha-

bituation to a lower temperature of approximately 60 degrees (the British standard) instead of 70 degrees, which is more generally the case in this country; and an abundance of cleansing and purifying sunshine—what desirable factors in the growth of the healthy child! Says Dr. Galton: * "Second only to air is light and sunshine essential for growth and health; and it is one of Nature's most powerful assistants in enabling the body to throw off those conditions which we call disease. Not only daylight but sunlight; indeed, fresh air must be sun-warmed, sun-penetrated air. The sunshine of a December day has been recently shown to kill the spores of the anthrax bacillus."

Our school plans for more life in the open air and for the cleansing bath of sunshine to every part of the building. It also provides for a healthful site and perfect sewerage; a dry and thoroughly ventilated substructure; walls that are impervious to moisture and yet breathe; an inner finish that can not absorb and can be easily cleansed; floors of hardwood, closely matched, treated with beeswax and turpentine, free from dust and constantly purified; walls tinted in soft colours; pure distilled water; individual cups and individual towels.

The school rooms are all one story, and have no stairs. The different sections are connected with continuous arcades, closed in winter and open in summer. The general quadrangle faces the southeast, so that every wall is sun-bathed. The illumination of the room is from overhead, and through milk-white, translucent

* Galton's Healthy Hospitals, p. 198.

glass. This gives indoor work the natural light, flooding the entire room. There are no harsh shadows. Every child gets his adequate portion of light. There are no dangerous reflections from the blackboard, because the angle of reflection can not reach the child. There is no tendency to spots on the cornea from perverse light nor absence of perfect illumination.

"Would there not be too much light?" inquires some one. "It seems to me I know cases which would be greatly injured by your flood of light."

Cohn and Kotelmann both say that there can not be too much light. It must not be forgotten that our light is now overhead. This is the natural light, from which the eye is protected by the lid. There is no shield to the eye from lateral light admitted at low levels, as is the case in most school rooms. There may be some diseased eyes which can not stand full light. These are largely the products of previous living in the dark, and should receive special attention.

The paper on which the books are printed is a light yellow, of soft background, and entirely without gloss. Books printed in type less than pica are not used in this school. There is also a discarding of excessively fine work. Writing and other exercises, requiring fine co-ordination, are not permitted until after the larger areas of the brain have approximately reached their maximum development.

The physical training is in the hands of experts. There is a careful examination of each pupil to note his physical condition; watchful care is exercised to detect weaknesses or exceptional needs; and daily medical inspection wards off the entrance of disease. The

school works on the hypothesis that almost every dullard, dunce, or depraved child is largely so because of physical defects or malformations; and special attention is given accordingly. The furniture is adjustable and of varied kinds; and great care is given, in every department of the work, to get away from the practices which make man so much a sitting animal. Individual advice is given all special cases as to foods of greatest individual value; and, in every case, pure water is insisted upon. The school, also, has its own baths, where, at prescribed hours, pupils may have instruction in swimming and other facilities.

The course of study is built on the hypothesis that the order of the development of the brain must be followed; that there are certain nascent periods when budding strengths make formal work easy; and that there is no gain in forcing these periods. It therefore recognises that the infant is safest in the care of the mother. Approximately, the years of five, six, and seven are given to the play school; eight, nine, and ten are given to the alphabetic school, where the child gets his first acquaintance with the alphabets of reading and numbers and his acquisition of skill in the handling of working tools; eleven, twelve, and thirteen are termed the years of full childhood, and are given to a general survey of the field that will enable later choice to be more intelligent; the year fourteen is a year of relaxation; fifteen, sixteen, and seventeen are full of the overflow of adolescent energy, which must be occupied and given wide choice and freedom for personal convictions; and the college, with its greater altruism and need of general culture, and the university, with

its specialization, follow. It will be seen (Chapters VII, IX, X) that there is much contact with Nature, books are subordinated to their proper place, there is much individual choice, and that the general course of study is subject to unlimited individual variations.

While the school recognises the essential values in careful physical training, it also holds that there are intrinsic physical values in proper mental activities. The history of all greatness goes to show that the normal activity of the mind plays its important part in determining the longevity of different individuals. The old theory that brain work must be attended with physical deterioration is not countenanced. The healthiest child or man is the one who has the poise which comes from regular hours of mental activity, interesting pursuits, proper habits of work, and the delights of personal accomplishment. The work of the school, then, in all its play, physical training, study, investigation, and construction, is a unit in the furtherance of the personal health of each individual.

Our school recognises the right of the pupil to be absent on necessity, to come for a part of a day only, or to be irregular in days. When the pupil is sick, he has relaxation; when he returns convalescent, he is not pressed to keep up with his class, and doubly pressed to make up what he has lost. There is no unnatural penalty for weakness. He may take the full course of study, or less or more; and he may do the work in his own time.

"But," says Dr. Antiquarian, "if you have no home study, what will occupy the time of the pupils during the evening hours? It seems to me they will run to

social excesses, which will be more harmful than the effects of evening study."

The studies of Dr. Tuckerman* do not show this to be the case. It is a great mistake to suppose that all the education of a child is comprehended in that offered by the school. The child needs time for social recreation, for home duties, for attendance on church, lectures and musicals, and for voluntary readings and creations. There are infinite values in education outside of the school. As a rule, the audiences which greet the most instructive lecturers contain no high-school students, because the pupils are led to believe that they can not afford to give up a lesser for a greater value, and therefore are educated to minimize the great educational opportunities outside of the school. Dr. Edward Everett Hale, as he told me, one day said to his son, "Wendell Phillips is to speak in Boston to-night; I would like to have you go and hear him." "But, father," said the son, "I have not time. I have 80 lines of Virgil for to-morrow's lesson and I must get them." "My son," said the father, "what are 80 lines of Virgil to the privilege of hearing Wendell Phillips?" Notwithstanding all that could be said, the boy held to his preparation for the school; "and thus," said Dr. Hale, "for the paltry value contained in 80 lines of Virgil my son missed hearing the greatest orator of his day."

It is also true that the school child is usually crowded for time. Under the unfavourable circumstances of evening study he must spend at home twice

* Boston Medical and Surgical Journal, vol. cv.

as much time in doing a piece of work as would be required in the better school. He carries the worry of his work to his bed, does not recover in the night perfectly from the fatigue of the day, and goes to the school in the morning mortgaged in strength, when he should be fresh and vigorous. Too frequently the child gets his lessons on Sunday, which, in the ethics of the home, is not considered work, because it is from a book. He thus, perhaps by desultory work which the school encourages, works more hours in the day than the adult man, and frequently more days in the week. It is by reliance on the greater conditioning values of better health that our ideal school does in short hours what before has taken much greater time.

Beyond all this, I believe, under proper restrictions, in the rest and change which come from social recreations; and in the opportunity for much spontaneous home work, growing out of the suggestions of the school and associate agencies.

"I am very glad," remarks Dr. Progressive, "to hear you say this. There certainly has been a large amount of poor health among school children, which, whether caused or not by the school, ought to be corrected by the school. Dr. Tuckerman, in his investigations, to which reference has been made, after a careful study of the health of school children as affected by home study and social recreations, says: 'Ill health among scholars increases directly as the amount of time spent in study beyond school hours and inversely as the amount of recreation taken.'"

"Do you mean to imply," inquires some worthy

clergyman, "that good health is an essential condition of better morals?"

Not an essential condition but a very helpful one. With all respect for the work of the Sabbath-school, and I yield to no man in my estimate of its worth, I am ready to say that character is better made in the kitchen than in the Sabbath-school. Undoubtedly there are exceptional cases where great beauty in moral worth has been attained by people in poor health; but poor health is abnormal, and, as a rule, does not condition the child or man for moral excellence. Dr. Johnson used to say, "Every man is a rascal when he is sick."

"I do not agree," says Dr. Patent Medicine, "with all this doctrine about the differentiations of different children and their various needs. Now, my practice is to give them all a dose out of the same bottle, and if that does not cure, to keep it up until it does."

"And I," exclaims Dr. Olden Times, coming to the rescue, "bleed them all alike, or give them a good-sized pill of blue-mass. I tell you there is nothing like something drastic to bring people around when they are a little out of order."

"And I," says Dr. Procrustes, "always try to fix my patients so that they can walk and move with some balance. If one leg is too short, I stretch it a little. If the other is too long, I whack it off. That's the easiest way of giving balance to people. There is nothing like equipoise, balance, and symmetry."

Perhaps that is the easiest way. At least it is the treatment which children too often receive in the schools.

"I like very much," says Dr. Twentieth Century, "the plans which have been presented. If education is to be true to its mission, it must comprehend the whole man. If it is to lift man to any high results, it must take time to build its foundations well. If education and medicine are ever to be scientific they must be individual. It seems to me not unreasonable to think that the child has a right to expect, not a discriminating rank, not a false honour, not a diploma which means little, but good health as the first instalment of his qualifying education. I like very much the statement made by President Hall: 'A ton of knowledge bought at the expense of an ounce of health, which is the most ancient and precious form of wealth and worth, costs more than its value. Better Tolstoi's kind of liberty, or the old knightly contempt of pen and book work as the knack of craven, thin-blooded clerks; better idyllic ignorance of even the invention of Cadmus, if the worst that the modern school now causes must be taken in order to get the best it has to give.'"

CHAPTER XVI.

THE ETHICAL BASIS OF THE SCHOOL.

"The real democratic American idea is, not that a man should be on the level with every other man, but that every man shall be what God made him without let or hindrance; that there shall be no prejudice against him if he is high and that no disgrace shall attach to him if he is low; that he shall have supreme possession of what he has and what he is; that he should have liberty to use his powers in any proper direction." (Beecher.)

CHARACTER is not the product merely of Bible reading and attendance upon the Sabbath service, although these are intrinsically important and contributive, but of every thought, word, and act of daily life. If we wish to lift the children of the home and the school into an atmosphere of ethics, we must start on the basis that every exercise of the school is potential in opportunity for higher living and higher realization. Says Henry Withington: "Every word of our lips, every thought of our brain, every act of our feet, every emotion of the heart, and every vision of our fancy, might be looked upon as so many dancing leaves in an autumn wind, tossed hither, rising now, floating there, but in the end all falling to the ground, all soaked together in a cold clammy moss by the dews and rain of successive nightfalls, all melted together at last in the heats of trial and crowded together under the pressure

of adversity, and cooled together in the winters of desolation, till in the end they make the rock which we call Character."

With this lofty conception it is not well to check the child at every point of spontaneous action; it is not well to break his will; it is not well to have him rest under the realization that the detective's eye is ever on him, and to bring him up under the morbid conception that he is constantly doing wrong. Froebel says "the unconsciousness of the child is rest in God." And so also it is a good thing for any child or man for ever to realize that he is a son of God. The school room, therefore, should always be a bright, sunny place, illumined by the teacher's smile, vitalized by the teacher's inspiration, ennobled by the pupil's best work, and baptized by the teacher's benediction. To leave a child under the frown of the law, with all his inner vindictive nature stirred within him under an attempt to break his will, is to leave his soul in hell for that length of time. He should be lifted out of himself at the first possible moment; and this can only be done by the winning presence of the great sunshiny life, which tempers justice with mercy and offers the guide-star of hope. How important, then, it is that those who are chosen to teach should be masters of their own lives, and, by the permeation of human sunshine, should be able to establish in the school room that atmosphere which types the spirit of God!

Every exercise of the school room should be full of ethical potentiality. If it is not, it has no place in the school. For this reason, the programme should be flexible. Because of this, also, the keys to interest

should be individual. If one key will not answer, another should be tried at once. Within every heart is a germ of divinity, which will respond to life when given its own culture; but, to any great extent, this culture is not possible under the incarceration of uniformity.

It is a good thing to realize that good health is normal and poor health is abnormal. Almost all criminals are defectives physically. The human organism is such a bundle of reactions and reflexes that it is almost impossible to have moral wealth without physical health; at least, the latter largely conditions the former. The child needs life in the sunshine. He needs refreshing sleep and well-selected, wholesome food. He needs normal hours for work. He needs an abundance of opportunity for pent-up energy to express itself in play, and in that which is related to play. Good health must be recognised as the basis not only of intellectual endeavour, but also of moral achievement. The normal body must be the dwelling-place of the normal soul. Attention to matters of health, therefore, can not be too important; for, as President Hall has well put it, "He who is true to his body, which is the temple of the Highest, can not be unfaithful to his soul."

The mainspring of character is motive.* When evil thoughts arise from any other causes they are misfortunes; when they follow motive they are crimes. The realization that character is not a chance product, but the direct result of volition, can not find a place too early in our schools. To that end there must be banished from the schools all unnatural incentives. Per

* Search. Motives, Manual Two, Los Angeles Public Schools.

cents, prizes, markings, and discriminating honours are all rewards which are false to the best ethical interests of the child. The child who is taught to work for such an incentive is bribed, be it even in committing to memory a passage of Scripture; he is bought with a price, and to that extent debauched and demoralized. He is not lifted into an atmosphere of ethical influence. For the time being he spurts well, but he is seldom a continuous worker after his false objective is gone. The pupil must be trained to work because all work is its own reward, contributive to his own and the happiness of others. If work can not be accomplished with this high motive, it were better left undone.

There is ethical impulse in happiness. Every child has a heaven-born right to be happy. To this end the basis of the child's gradation in the school should be the place where he can be the happiest. Shall it be with the teacher who sours everything she touches? By no means. Shall it be with children years younger, as is often the case in schools? Certainly not; he should be grouped more nearly with his playmates. The details of their work may be heavy, but its suggestions will be much. If the pupil is slow in pace, shall he be discouraged by being plunged into difficulties beyond his comprehension; or, if he can travel rapidly, shall he be encouraged to idleness and have the ambition taken out of him because he must wait for others to catch up? Is there ethical promise in the dead exercise of the school, in which many of the class are killing time while a few are reciting? Is there hope to the stranded pupil who realizes that he is at the foot of the class, to be always laughed at; that he is

a miserable misfit; and that the sooner he is out of the way the better? Is not a misfit the greatest problem in all the realm of ethics?

On the other hand, is there not resurrection to the child in the realization that the work perfectly fits his working needs, that his place is just as important as that of any other worker, that he also is a discoverer and contributor to the happiness of others, and that the offering he brings to the altar for the benediction of his teacher is the very best thing which he can then produce? To a child thus placed and thus occupied life takes on meaning at every step. He is conscious of a welling up within him of personal happiness. He is proud of his work, and he promises himself that to-morrow's achievements will be greater than to-day's. He is not measured by the capabilities of others, and he realizes that the school is just.

Every child is entitled to all the opportunity he can properly utilize. There is life and strength in living up to the top of one's endeavours; but these tops are not the same for all persons. The pupil in the school is entitled to the privilege of producing the best that is within him. If he can do much, that much is his privilege; but if he can do only little, he has a divine right to do that little well. If uniformity should govern all the operations of men we should have no great things in science, literature, industry, or art. If the school is to be life, it must conform its practices to life. Every rise to greatness follows opportunity, and every failure to present opportunity surrounds man with an atmosphere which violates all the laws of ethical growth.

To grow strong, to take pride in one's work, and to deserve reward in the school, in life, or in heaven, man must have opportunity for choice. In no other way can character be made. To have the steps of one's procedure mapped out by the school, to follow a given course of study with little opportunity for personal decision, is to render weak the character which the school should make strong. At every step of the way the pupil needs opportunity for self-government, for the election of the steps of his procedure, for the decision of that which entails consequences. There is little virtue in being good if one has not had opportunity to do wrong. No enduring strength to resist temptation comes excepting as the soul has been made strong through conflict. There is no pleasure in study, in discovery, or in achievement, excepting as one reaches results by determinative volition. The very consciousness of choice involves also the realization of responsibility; and the greatness of all responsibility is that it is individual.

Then, in the school, the child should have opportunity for choice at every step of the way. From the teacher he should have opportunity, counsel, direction, and encouragement; but from himself must come the initiative which is to produce results. In school government he must be his own dictator, judge, and jury. In discovery he must be original as far as he can go. In the selection of courses of study and in the pursuance of his work he must early come to decision; for in no other way will his work be vitalized by purpose.

Is not this the fundamental plan in all divine

economy? Does not God give to every man opportunity and presence, with the necessity for responsible decision at every point of the way? Are not the great fundamental doctrines of God's sovereignty and man's free will perfectly consistent and complemental? Could strong, trustworthy, and laudable character be made in any other way? If, then, this is the divine plan, how can the school improve upon it?

The true worth of all character is measured in terms of service. What is a man's life worth if not to enrich others? So the product of the school is valued at what it is worth to the community; of the individual, at what he can offer his fellows. The pupil trained as an individual unit has a clearer vision of life. He knows the steps by which man climbs to greatness. He realizes the weight of personal responsibility. He is interested most in the community, because he has something with which to enrich it. He has not been trained in isolation, as many would think. His choice, his steps, his rate of progress, and his discoveries only have been individual. He has been federated at every step of the way with the group, the class, and the school; but, in his federation, he listens all the more interestedly because others have something fresh to offer him, and he is heard always with the greater delight because what he himself contributes has the greater value.

Association, opportunity, motive, choice, and responsibility—these are the great cardinal factors in the making of character. The pupil trained therein, and he can not begin too early, is strong for all the responsibilities of citizenship and of life. Whenever a child is

given a piece of work which is absolutely his own, that piece of work if well done, however little or great it may be, becomes to him a source of conscious pride which may contain the salvation of his entire after-life. That pupil, so trained through the processes of years, becomes the trustworthy citizen. "Is not that the best education," says Plato, "which gives to the mind and to the soul all the force, all the beauty, and all the perfection of which they are capable?"

So in this great country of ours, as Dr. Edward Everett Hale has so well put it,* "every child is a prince" to be trained for responsible leadership. Napoleon, in his contemplated training of the young king of Rome, summoned the wisest men of the nation to plan an education which should be fitting the royal pupil. Aristotle was intrusted with the training of Alexander; and to Fénelon was given the education of the young Duke of Burgundy; but in this country, where every man is his own priest and king, we have a greater prince to be educated. Is any price too great to pay for his culture and training? Shall we not equip him for the great responsible place he is to occupy in the field of human action?

"How shall we train our prince? To rule his land,
Love justice and love honour. For them both
He girds himself and serves her, nothing loath.
Although against a host in arms he stand,
Ruling himself, the world he may command;
Taught to serve her in honour and truth,
Baby and boy and in his lusty youth,
He finds archangels' help on either hand.

* Hale's Education of a Prince. Chautauquan, vol. xx.

"The best the world can teach him he shall know,
The best his land can give him, he shall see,
And trace the footsteps where his fathers trod;
See all the beauty that the world can show,
And how it is that freedom makes men free,
And how such freemen love and serve their God."

NOTE.—For a fuller treatment of this important subject by the writer, see article The Ethics of the New Education, Educational Review, February, 1896; also in pamphlet form.

CHAPTER XVII.

IN CONCLUSION.

AND now, good friend and critic, to this constructive presentation two or three reminders should be added.

If this discussion has in any of its parts seemed severely critical, such criticism has been aimed at the weaknesses and not at the soul of the public-school system. I love the public schools and champion their great potentiality. Undoubtedly they have accomplished much good, but they could do more. Not for a moment would a single straw be added to the burden of work now carried by faithful teachers; but to these teachers would be given opportunity for growth, initiative, essential results, and the delights of high thinking. The attempt is here made not merely to point out the weaknesses of our great educational system, but, by way of illustration, to offer something constructive for its improvement. The public schools are not ideal.

The plan which has been presented is not the idle dreaming of a theorist, but the gathering together of the best things in the ripe experiences of many schools. These different factors, as has been evidenced by abundant illustration, have been, in almost every instance, thoroughly tried. It only remains that they should be

put together in a single structure, and the result will be An Ideal School.

In your consideration of these many specifications, I beg you will not view them only in part, or the object you may see will not be a very practical or finished structure. Some of the features are so radical that they must be seen in their entire correlations in order to be fully understood. If the plan is anything, it is comprehensive; and the illustrations, it is hoped, are sufficiently abundant to make clear every point presented. I beg of you, therefore, that you will examine these specifications in their entirety before you proceed to pass judgment on any one or more of them.

Perhaps the section which will be the most criticised is the argument for the centralization of all a city's schools on a single park; but the twentieth century has not yet passed, and stranger things than this have happened in the history of the world. Doubtless, our cities, as they are now controlled, will not be in haste to adopt such an ideal plan; but some city or town may adopt the plan, as some are even now approximating it, and to that community will come a profound influence and leadership in solving the question, How shall we overcome the economic losses attending the trend of life from the country to the city? A centralized school plant is not essential to the application of the educational principles involved in the discussion of methods of instruction; but it is advocated for consideration wherever approximately possible as an exceedingly desirable adjunct in the unfolding of a complete plan of ideal education. At the very least, the

argument for larger school grounds, in some form, will stand.

I repeat once more what has been already several times stated: this is not a method excepting in the barest outlines; but citations of many methods have been made for the purpose of illustrating essential principles. Methods must vary endlessly with the *personnel* of teachers, circumstances, subjects, grades, objectives, etc. Attention is called to the fact, easily overlooked, that nowhere in these pages is this called The Ideal School—but An Ideal School.

These plans are applicable, with proper modification and adaptation, to a school system of any size. However, I am not so sanguine as to think that they will meet with any immediate or wide adoption excepting as they will perhaps work their way unrecognised and unconsciously into the evolution of school policies. An ideal school can not be built at present within the borders of the public-school system. The conditions are too changeable. Plans can not be sufficiently continuous and comprehensive. The environments are such that aims, purposes, and results are too easily misunderstood. The planner can not select in order to effect. There can not be opportunity for quick readjustment and correction of weaknesses, which is absolutely essential in the performance of original work. It takes time to build a school even under the most favourable conditions.

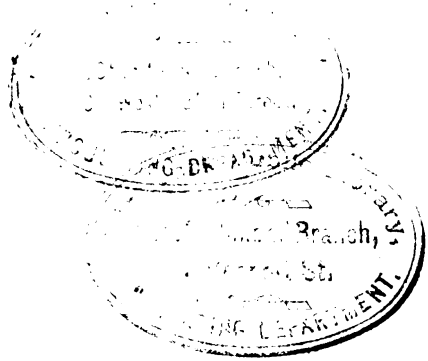
An ideal school, then, for its full fruition and effective demonstration, must be built outside the public-school system and as a philanthropic enterprise. Its control would then be continuous; its purposes better

understood; its plan more comprehensive; its structure more corrective; its budding and flowering and fruiting more true to their seasons. Such a school would be an ideal for all the world. It might not see its plans bodily reduplicated, but it would leaven and reconstruct in time the entire educational system. It would be a practical demonstration, impossible under the environments of the public-school system, of heights to which schools have never yet reached; and it would establish claims which would demand a recognition in the educational policies of the world. The building and maintenance, for a year or two, of such a system in a town or city, or part of a city of sufficient size to make the school comprehensive, would establish a line of ideals which would make impossible return to the usual system.

What a great opportunity is this for some multi-millionaire! In these days when the generosity of the rich man is so expressing itself in the enrichment of types of higher institutions already largely determined, what a great field is this for some one, happier in thought than the rest, who wishes to go to the bottom of things and upbuild an institution which will lift all educational life, because it is genetic and presents ideals which, in time, will transform the school policies of the world!

Why should only the higher institutions receive the encouragement of philanthropy and endowment in their original work? Almost every great educational movement of the day comes from outside the formal system of schools and is ingrafted only on the demonstration of its possibilities. The greatest field in all education

is that which comprehends the care and culture of children, and yet this is but poorly developed. An ideal school, built under favourable conditions, for the demonstration of great possibilities in the better education of children, would lift the college and the university; but above that it would reconstruct the entire system of the education of the young.

(4)

THE END.